

REVISION OF THE AUSTRALIAN GHOST MOTHS  
(LEPIDOPTERA HOMONEURA, FAMILY  
HEPIALIDAE)

PART I.

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Fig. 1-64.

INTRODUCTION.

This paper is the first of a series, in which it is hoped to review the Australian genera and species of the family Hepialidae, or Ghost Moths.

This group includes some of the most archaic of lepidopterous insects, veritable living fossils, which have survived in greater profusion in the isolated continent of Australia than in any other part of the world.

Their injurious feeding habits in the larval state cause many of them to be of considerable economic importance to the timber and grazing industries.

The present review is based on practically all the material of the family preserved in the various Museums and private collections of Australia. In 1929, through the co-operation of the Australian National Research Council and the Board of Governors of the South Australian Museum, most of the larger collections in Victoria and New South Wales were examined, and many specimens were brought back to Adelaide for detailed study. Special thanks for the loan of material and other data are extended to the Directors of the Australian, Macleay, and National Museums, to Drs. A. J. Turner and G. A. Waterhouse, and to Messrs. W. B. Barnard (Toowoomba), G. M. Goldfinch (Sydney), C. G. L. Gooding (Moe), J. A. Kershaw (Melbourne), G. Lyell (Gisborne), and L. J. Newman (Perth).

A bibliography, a key to the genera, some notes on general ecological problems, and a further list of acknowledgments will be given at the conclusion of the review of genera and species.

FAMILY HEPIALIDAE.

This is one of the largest surviving groups of the Homoneura, which are characterized by the marked similarity in the venation of fore- and hind-wings.

All the members of the family possess a lobe, called the jugum, at the base of the posterior margin of the forewing, for which reason they are sometimes grouped together with some other primitive forms under the term *Jugatae*.

The Hepialid type is of great antiquity, dating back at least to the Jurassic Period. Characters believed to be primitive are the marked gap between the fore- and hind-wings, the homoneurous venation, the obsolete mouth-parts, and the scale-like hairs, which appear to give an indication of the mode of origin of the more complex scales of the specialized Lepidoptera.

The eggs are small and produced in incredible numbers; the larvae are long and naked, with sparse hairs, often set upon warts; they live underground, feeding on roots, or as borers, in trees. A few species live in underground tunnels, but emerge on the surface at night to feed on grasses. The pupae are elongated, with the appendages free; they are capable of motion within the pupation tunnel by means of serrated margins to some of the mobile segments of the abdomen. The adults are incapable of feeding, being without functional mouth-parts, and therefore have but a brief existence.

The researches of Philpott upon the structure and relationships of the primitive Lepidoptera have done much to clarify our knowledge of the form and classification of this family; his original papers should be consulted for discussions on the detailed structure.

Short descriptions of form and markings, unaccompanied by illustrations, have proved to be of doubtful value in the study of the Hepialidae, partly owing to the underlying sameness of wing pattern throughout the group, and partly owing to the great variability which may exist within the limits of a single species. In this revision considerable reliance is placed on illustrations, the colour descriptions being usually based on the actual examples figured. In each case the total number of specimens examined is given at the end of the locality lists.

Owing to the brief emergence periods of some species, it has been considered advisable on occasion to quote the detailed dates of capture of the specimens under review; in all other cases the months of emergence are indicated, where known, by the numbers (1 to 12) which follow the locality name.

The types of the species described by Scott were found to be in the Australian Museum collection, and had been identified and labelled. The Lucas and Lower type specimens, together with a few of Turner's species, are in the South Australian Museum collection. Through the courtesy of the authorities of the British, Oxford University, and Tring Museums, photographs of the Walker, Swinhoe, and Felder type examples have been received. Definite determinations have been made possible for many species hitherto only doubtfully recognized,

and the synonymy, often clouded by false identifications, has been made somewhat less obscure.

Kirby (1892) was the first to fix the genotypes of the genera erected by Herrich-Schaeffer, Walker, and other early workers in this family. Some of his nominations are not in accordance with the International Rules of Zoological Nomenclature, and cannot stand. Each case has been discussed in detail in the following pages.

In 1914 several plates figuring Australian Hepialidae were published in Seitz' *Macrolepidoptera*, without descriptive text. Up to the present time this lack has not been supplied, owing to the death, during the Great War, of the author, the late R. Pfitzner. Through the courtesy of Professor A. Seitz a copy of Pfitzner's manuscript list of the "Hepialidae of the Indo-Australian Fauna" has been received; in this the missing localities and generic indications are given.

Pfitzner's illustrations represent definite "indications" (International Rules, Article 25), and are therefore valid. In the synonymy quoted in this paper his name and that of the genus are placed within square brackets to show that they are not definitely indicated in the original publication and have been supplied from the manuscript.

*TRICTENA* Meyrick.

*Trictena* Meyrick, Proc. Linn. Soc. N.S. Wales, iv. (2), 1889, p. 1135.

Antennae tripectinate in both sexes (fig. 2-3). Labial palpi well developed,

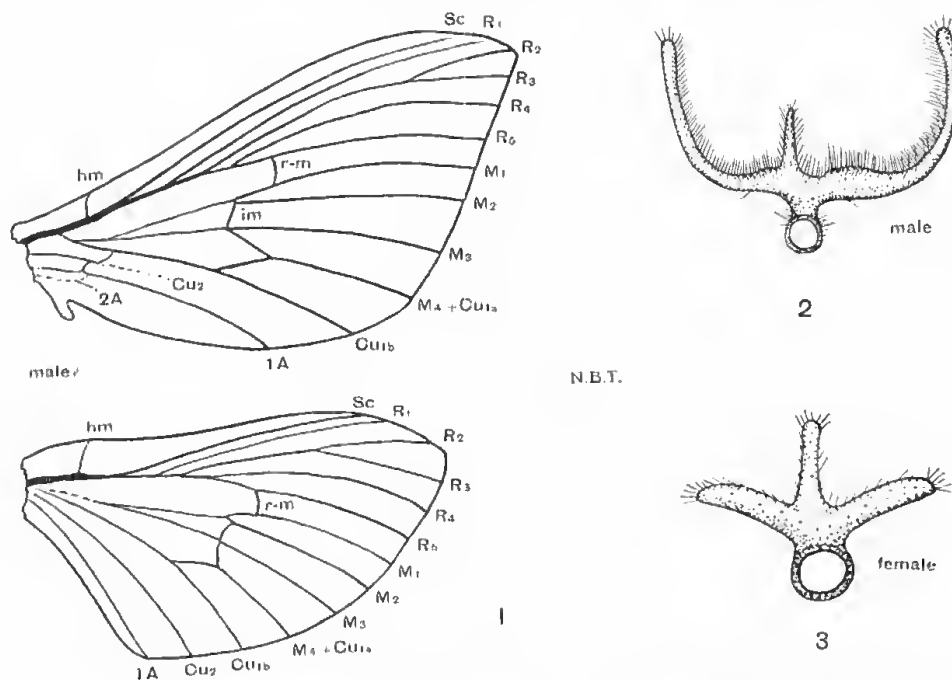


Fig. 1-3. *Trictena argentata* (Herrich-Schaeffer). 1. venation; 2. transverse view of a male antennal segment; 3. ditto female.

three segmented; second segment longer than first, apical segment half the length of second, and twice as long as wide. Maxillary palpi reduced, composed of a single spherical segment. Forewings with  $R_1$  separating from  $R_s$  before branching of  $R_5$ ;  $R_1$  and  $R_5$  forked. Hindwings with  $R_1$  and  $R_5$  branching before radio-median cross-vein (fig. 1). Genotype: *Trictena argentata* (Herrich-Schaeffer, 1855) = (*labyrinthica* Meyrick, 1889, *nec* Donovan, 1805).

Members of this genus can be distinguished from all other genera of Australian Hepialidae by the tripectinate antennae.

#### KEY TO THE SPECIES OF TRICTENA.

- a. Forewings with subterminal white band broad, often broken up into a series of isolated spots or abbreviated . . . . . *argentata*  
 aa. Forewings with subterminal white band narrow, seldom abbreviated or broken up into a series of isolated spots . . . *argyrosticha*

#### TRICTENA ARGENTATA (Herrich-Schaeffer).

Fig. 1-10.

*Cossus labyrinthicus* Angas, South Australia Illustr., 1847, pl. 37, fig. 12, male (*nec* Donovan).

*Epiolus argentens* Herrich-Schaeffer, Lep. Exot., 1853, pl. xi, fig. 47-48, male and female (*nec* Donovan).

*Abantiades argentatus* Herrich-Schaeffer, *l.c.*, 1855, p. 5.

*Pielus atripalpis* Walker, List. Lep. Ins. Brit. Mus., vii, 1856, p. 1577.

*Trictena labyrinthica* Meyrick, Proc. Linn. Soc. N.S. Wales, iv (2), 1889, p. 1135 (*nec* Donovan).

*Pielus hydrographus* Swinhoe, East. Lep. Het., i, 1892, p. 289 (*nec* Felder).

*Trictena labyrinthica* [Pfitzner], Seitz Macrolep., fauna indo-australia, ii, 1914, pl. 75a, male and female.

♂ Antennae dark brown, palpi pale brown, thorax abdomen and legs greyish-brown. Forewings dark greyish-brown with numerous labyrinthine markings; irregular silvery-white discoidal and terminal white bands; a series of anal marginal spots may be present (fig. 4), vestigial (fig. 8), or absent. Hindwings greyish-brown. Expanse, 105 mm.

♀ Antennae and palpi brown, abdomen densely clothed with pale fawn-colored down. Forewings greyish-brown with lighter labyrinthine markings; distinct traces of discoidal and terminal white bars present, much infuscated. Hindwings greyish-brown. Expanse, 166 mm.

*Loc.* Queensland: Toowoomba 6. New South Wales: Sydney 5; Roseville 9; Mittagong 4; Hornsby 6; Newcastle; Ash Island; Clarence River; Narromine;

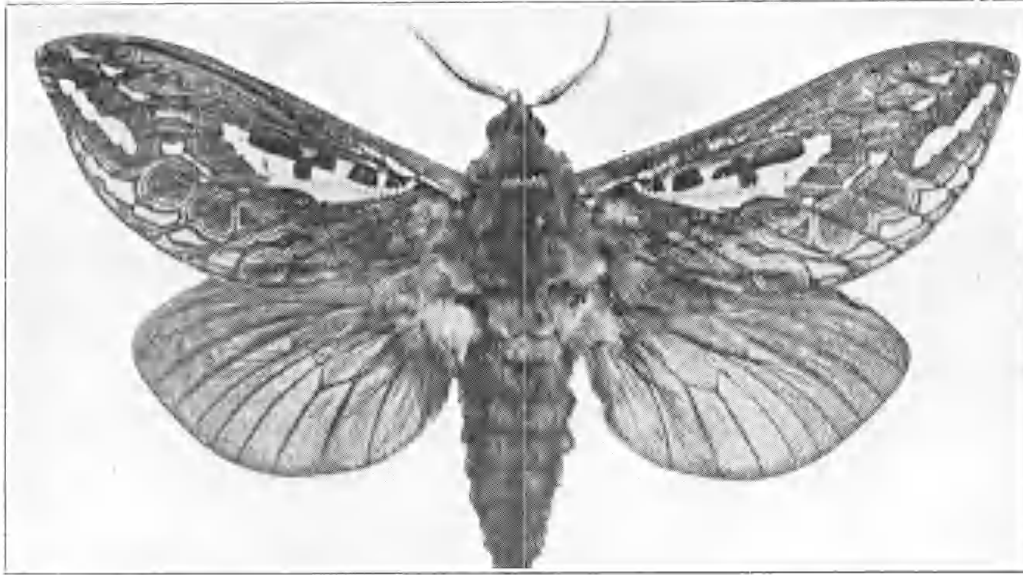


Fig. 4. *Trictena argentata* (Herrich-Schaeffer), male, Blackwood, S.A., nat. size.

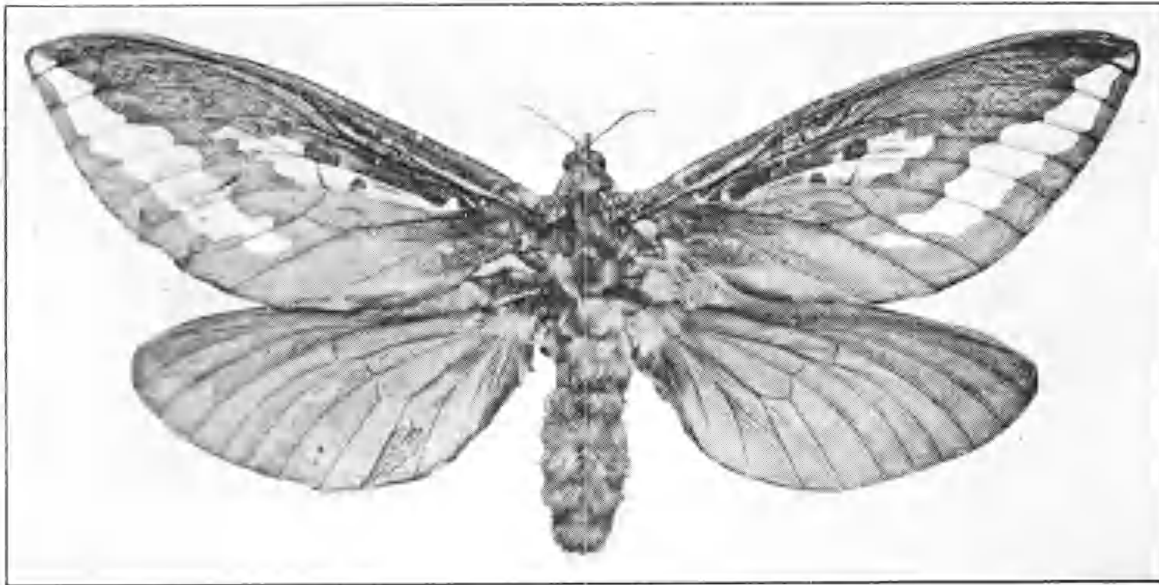


Fig. 5. *Trictena argentata* (Herrich-Schaeffer), female, Blackwood, S.A., nat. size.

Bowral; Tuncurry 6; Glen Innes 5; Beecroft. Victoria: Gisborne 4; Macedon 4; Caulfield 4; Castlemaine 4; Fig Tree Gully 5; Moe; Kilmore 4; Bullengarook 4; Timberoo South 5. Tasmania: Hobart. South Australia: Adelaide 4, 5; Waikerie 5; Ardrossan 5; Moonta 5; Bungaree 5; Blackwood 4, 5; Cooper Creek; Tarcoola 5; Port Augusta 5; N.W. of South Australia. Western Australia: Perth 7; Swan River; Boulder; Fraser Range 10. 84 males, 28 females.

The pair described and figured (fig. 4-5) are from Blackwood (l. 18653 in South Australian Museum). The species is wide-ranging and variable. Two principal forms may be distinguished.

- a. Forewings with labyrinthine markings well developed . . . *argentata*
- aa. Forewings with labyrinthine markings obsolete or absent f. *atripalpis*

The plain dark examples (fig. 8) are usually larger than the others, and seem to be characteristic of cold, wet districts. In the more northern localities and under arid conditions the specimens are smaller, paler in colour, and are well marked. Both forms may occur in the same locality; they are therefore not strictly geographical races. The variation is possibly climatic and seasonal, for



Fig. 6. *Trictena argentata* (Herrich-Schaeffer), male aberration with pattern on hindwing.

in the vicinity of Adelaide, where both forms are taken in abundance, the larger and darker examples appear to be most abundant after wet winters. Fig. 6 shows an aberration in which the pattern of the forewing is partially represented in the hindwing.

Seven males and four females of this species are present in the MacLay Museum. According to Scott (1) these include a pair, unmarked, which are the types of "*labyrinthicus* Donovan." Careful comparison shows that none of specimens agree, even superficially, with Donovan's original figures. On the other hand, there is a female, with unipectinate antennae, which may be Dono-

(1) Scott, A. W., Aust. Lep. ii, 1864, p. 12.

van's type of *Abantiades argenteus* = *labyrinthicus*. This example is described in the appropriate place.



Fig. 7. *Triclonia argentata* (Herrich-Schaeffer), male, Adelaide, G. F. Angas (Oxford University Museum).

Professor E. B. Poulton has kindly examined the example, collected at Adelaide by G. F. Angas, which was described by Swinhoe, erroneously, as the male of *Abantiades hydrographus* (Felder). It has tripectinate antennae, and, as the photograph (fig. 7) shows, is an example of the present species.

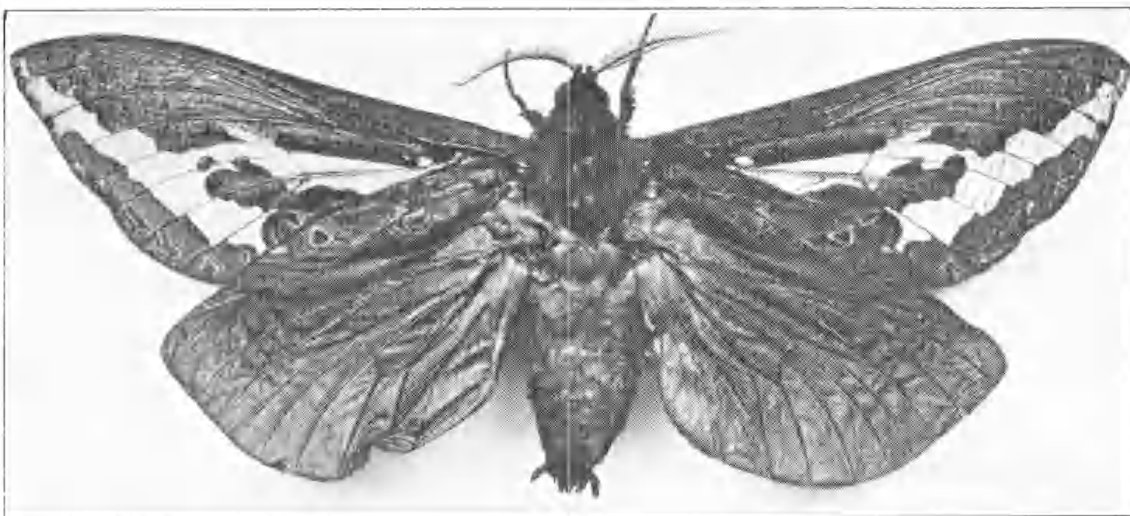


Fig. 8. *Triclonia argentata* f. *atripalpis* (Walker). Type, a male, Tasmania (British Museum).

The type of *f. atripalpis* (Walker), preserved in the British Museum, is also depicted (fig. 8). It was probably caught at Hobart, where Morton Allport did much of his collecting. This place may be therefore regarded as the typical locality for the plain dark form of the species.

The moth is abundant both in wet and dry localities. In many parts of arid Australia, south of Latitude 24, it is associated with the red-gum (*Eucalyptus rostrata*), upon the roots of which the larvae appear to feed. These trees grow on the banks of dry river beds, wherever there is abundant subterranean moisture.

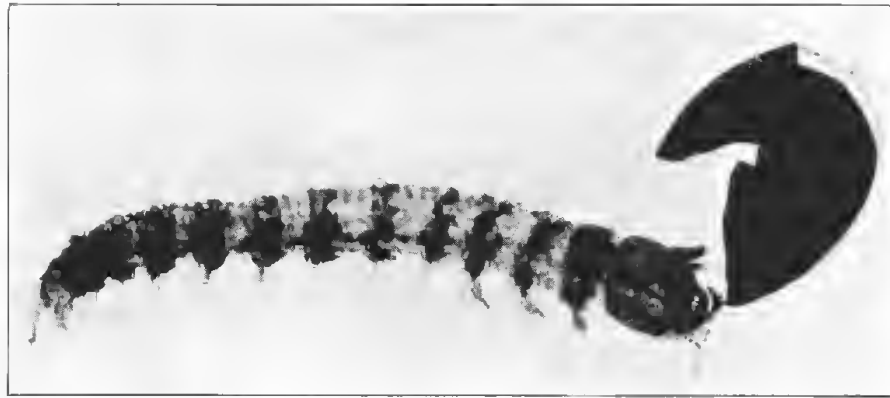


Fig. 9. *Trietena argyalata* (Herrich-Schaeffer). Newly emerged larva  $\times 25$ .

*Egg.* A female captured at Adelaide laid 29,100 eggs, and upon dissection an additional 15,000 fully-developed ones were secured. The moths lay their eggs while flying, broadcasting them in the vicinity of the gumtrees. When first laid the eggs are pale creamy-yellow, darkening to a slate-grey colour soon after deposition. In form they are almost spherical, smooth, and 0.6 mm. in diameter.

*Larva.* Eggs kept in a dark, damp place hatched within 24 days. The newly-emerged larva (fig. 9) is approximately 3.5 mm. in length, with large,

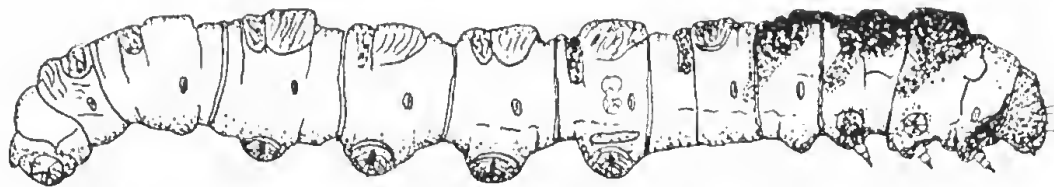


Fig. 10. *Trietena argyalata* (Herrich-Schaeffer). Adult larva, nat. size.

ochreous head, prominent jaws, and white, cylindrical body, naked, with a few sparse hairs. Sixteen legs are present. There is a full-grown larva in the South Australian Museum, labelled as belonging to this species; it is creamy-



white in colour, with dark castaneous-brown thoracic chitinizations (fig. 10). The head and the apex of the abdomen are oebreous. Length, 112 mm.; diameter, 14 mm.

*Pupa.* The cast skins can be readily distinguished from those of the pupae of the species of *Abantiades* by the impress of the tripectinate antennae on the facial mask. Pupation takes place in a vertical cylindrical tunnel 45 cm. deep, which approaches to within a few millimetres of the surface. Nothing is known concerning the duration of larval or pupal life.

In southern districts the imago emerges in the late afternoon after the first autumn rains have fallen. In the arid northern areas the moth emerges at irregular seasons, either shortly after or during the progress of heavy rain-storms. They are attracted to lights and to fires. Angas (2) records that on the banks of the Lower Murray River these "large ghost moths fluttered into the embers in such quantities that the natives made a capital supper on their scorched and roasted bodies." Similar incidents have been experienced among the natives of Cooper Creek (P. Wood Jones) and of the Northern Flinders Range (Tindale).

Gray (3) records that the natives of the Wirra tribe at Orroroo dug up the grubs and pupae from about the big gumtrees on the Pekina Creek, and cooked them in the ashes. They were known as *barti*.

#### TRICTENA ARGYROSTICHA Turner.

##### Fig. 11.

*Trictena argyrosticha* Turner, Trans. Roy. Soc. S. Aust., liii, 1929, p. 307, male.

♂ Antennae ochreous. Head, thorax, abdomen, and legs pale brown. Forewings brown, costa narrowly pale brown, inner margin broadly pale brown, with numerous fine scroll-like paler lines; irregular discoidal longitudinal and sub-terminal oblique silvery-white fasciae, partly margined with dark brown. Hindwings pale brown. Expanse, 110 mm.

♀ Unknown.

*Loc.* Queensland: Toowoomba 4; Atherton 3. New South Wales: Clarence River, 13 males.

The example described is a male from the type series (Toowoomba, April 8, 1924, 1. 18654, in S. Aust. Mus.); the figure is from an almost identical example in the Lyell collection.

(2) Angas, G. F., *Savage Life and Scenes in Australia*, v. 1, 1847, p. 57.

(3) Gray, J., *South Aust. Naturalist*, xii, 1930, p. 6.



Fig. 11. *Trietena argyrosticha* Turner, male, Toowoomba.

Two specimens from Atherton have the central area of the forewings somewhat paler than in southern examples; the markings differ but little.

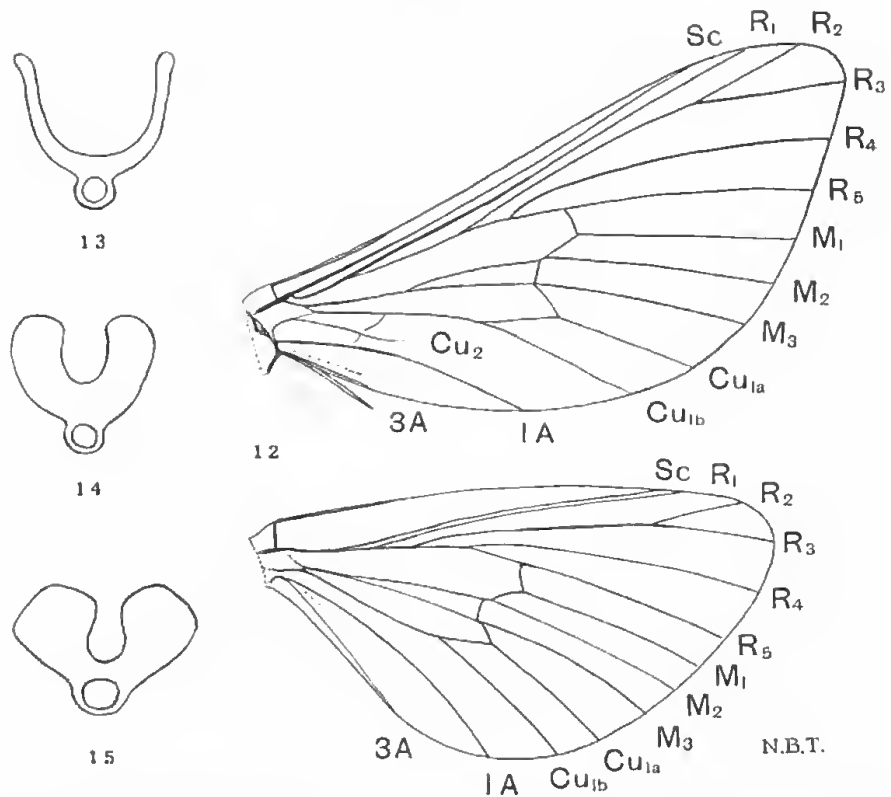


Fig. 12-15. 12. *Bordaia picu* gen. et sp. nov. Venation. 13. *ditto* transverse view of a male antennal segment. 14. *B. moesta* sp. nov. male antennal segment. 15. *B. furva* sp. nov. male antennal segment.

## BORDAIA gen. nov.

Antennae bipectinate; palpi moderate, apparently three segmented, terminal segment reduced, base concealed by dense hairs. Forewings with  $R_1$  separating from  $R_8$  before branching of  $R_5$ ;  $R_4$  and  $R_5$  forked. Hindwings with  $R_4$  and  $R_5$  branching before radio-median cross vein; cubito-median Y-vein absent (fig. 12).

Genotype, *B. pica* sp. nov.

The members of this genus combine the general appearance of some species of *Oryzomus* with the venational characters of *Abantiades* and its allies.

## KEY TO THE SPECIES OF BORDAIA.

- a. Forewings with conspicuous silvery-white bands.
  - b. Pectinations of antennae (in sectional view) slender .. *pica*
  - bb. Pectinations of antennae broad .. .. . *moesta*
- aa. Forewings without silvery-white bands.
  - c. Forewings with obscure markings .. .. . *furva*
  - cc. Forewings without markings .. .. . *paradoxa*

## BORDAIA PICA sp. nov.

Fig. 12-13, 16.

♂ Head with face and palpi black; vertex greyish-brown. Antennae long, pectinations long and slender, minutely ciliated. Thorax greyish-brown, with long whitish hairs posteriorly. Forewings sub-hyaline, greyish-black with

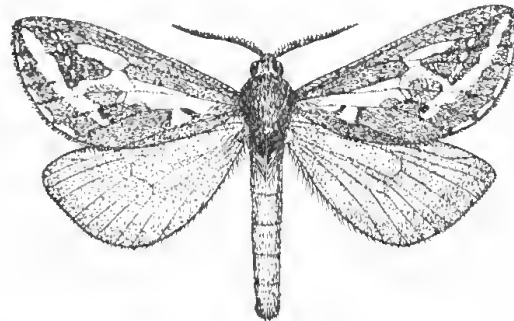


Fig. 16. *Bordaia pica* sp. nov., male, 1-2 nat. size.

silvery-white markings, consisting of irregular discoidal longitudinal and oblique subterminal bands; a series of six white spots in apical third running parallel to subterminal band and a terminal series of six narrow marks between the veins. Hindwings sub-hyaline, greyish-white, the terminal third darker. Expanse, 52 mm.

*Loc.* South Australia: Cape Borda, on Kangaroo Island (February, 1905, J. Kopp; type I. 18655 in S. Aust. Mus.). Western Australia: Merredin, "Australia" (Lucas Coll.). 5 males.

The type example was attracted to light at the Cape Borda Lighthouse. The two unlocalized examples from the Lucas Collection are possibly Victorian. They agree closely with the type.

*BORDAIA MOESTA* sp. nov.

Fig. 14, 17.

♂ Head brownish-black; antennae fuscous. Thorax and abdomen brown above (except at base); brownish-black beneath. Forewings dark brown; three series of silvery-white markings; a broken irregular series from base meeting an

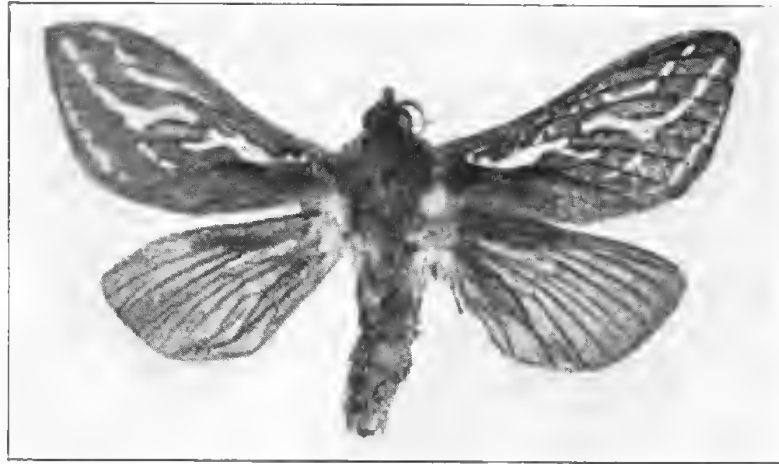


Fig. 17. *Bordaia moesta* sp. nov., Type, a male, Merredin.

oblique series from near apex; subcostal curved series in apical third, and a sub-terminal series near anal angle. Hindwings dark brown, base of wings and abdomen clothed with dense brownish-white pubescence. Expanse, 62 mm.

*Loc.* Western Australia: Merredin (L. J. Newman). 1 male.

In general appearance and build *B. moesta* resembles species of *Oryctes*, from which it differs in important structural details.

*BORDAIA FURVA* sp. nov.

Fig. 15, 18.

♂ Head brownish-black; antennae with broad, flat lamellations, dark brown. Thorax brown, abdomen pale brown, with a tuft of paler hairs at base; beneath dark grey-brown. Forewings brownish-black, darker at base, with

numerous obscure scroll-like markings; a broad subterminal oblique black band from near apex to about vein  $Cu_{1+2}$  enclosing two small rectangular white marks on  $R_1$ , and traces of others on  $R_2$  and  $R_5$ . Hindwings greyish-brown. Expanse, 120 mm.



Fig. 18. *Bordaia furca* sp. nov. Type, ♂ male, Western Australia.

*Loc.* Western Australia. (Type, unique, ♀, 18656, in S. Aust. Mus.).

A striking, if dully-marked form. The silver subterminal band characteristic of many Hepialidae is replaced by one of dull black. The antennae are long and stout, the lamellations being broad and angular.

*BORDAIA PARADOXA* sp. nov.

Fig. 19.

♂ Head uniformly reddish-brown; antennae with rather slender pectinations, dull ochreous. Thorax and legs reddish-brown, abdomen paler and densely covered with pink down, beneath pink, with reddish-brown apex. Forewings uniformly reddish-brown without markings. Hindwings a paler reddish-brown, at base densely clothed with pink-tinged creamy-white down. Expanse, 107 mm.

*Loc.* Western Australia: Lake Grace (April, 1930, W. B. Barnard). 1 male.

At first glance this insect could be mistaken for an unmarked example of *Abantiades hyalinatus* (Herrich-Schaeffer, 1853), but the broader wings, different venation, and above all the bipectinate antennae, are distinctive. The resemblance between the members of the present genus and some of the others seem to be rather the result of convergent evolution than of affinity.

## ABANTIADÆ Herrich-Schaeffer.

*Abantiades* Herrich-Schaeffer, Lep. Exot., i, 1855, p. 5.

*Pictus* Walker, List. Lep. Ins. Brit. Mus., vii, 1856, p. 1576 (genotype *labyrinthicus* Donovan (*nec* Meyrick *et alia*), designated by Kirby, 1892).

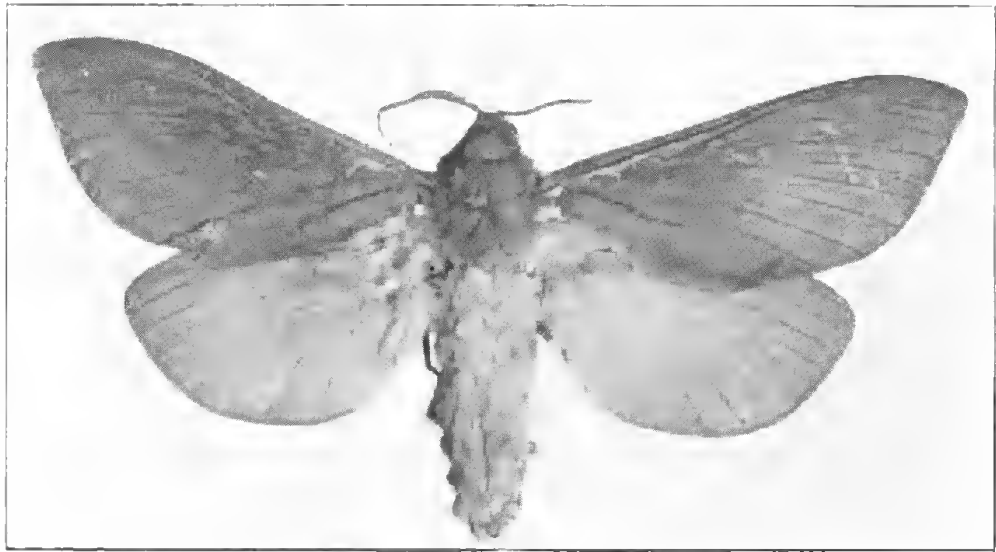


Fig. 19. *Bordaia paradora* sp. nov. Type, a male, Leke Grace.

Antennae unipectinate, pectinations often broad and lamellate in males, reduced in females. Labial palpi three-segmented, first and second segments approximately equal, apical one short, about as long as wide and subspherical; maxillary palpi reduced, forming ill-articulated protuberances at base of labium.

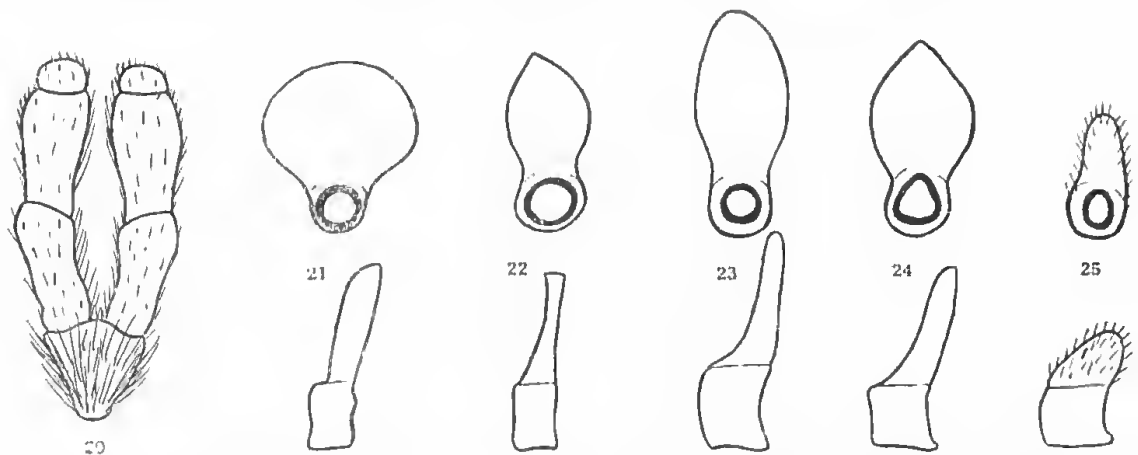


Fig. 20-25. 20. *Abantiades hydrocephus* (Felder) palpi. 21. *A. leucochiton* (Pfitzner) transverse view of male antennal segment. 22. *A. barcas* (Pfitzner), male antennal segment. 23. *A. hydrographus* (Herrich-Schaeffer), male antennal segment. 24. *A. hyalinatus* (Herrich-Schaeffer), male antennal segment. 25. *A. apheriges* (Turner), male antennal segment.

Forewings with  $R_1$  separating from  $R_2$  before branching of  $R_5$ ;  $R_1$  and  $R_5$  forked. Hindwings with  $R_4$  and  $R_5$  branching before radio-median cross-vein.

Genotype: *A. hyalinatus* Herrich-Schaeffer, 1853 (*A. diaphanus* Herrich-Schaeffer, 1855), designated by Kirby, 1892.

Meyrick recognized only two species in this genus; fourteen are now known. Preparations of the mouth-parts, genitalia, and antennae of most of the species have been examined; the specific characters prove to be quite well marked, and the separation of the species is easier than in *Oncopera* and *Oxytenus*.

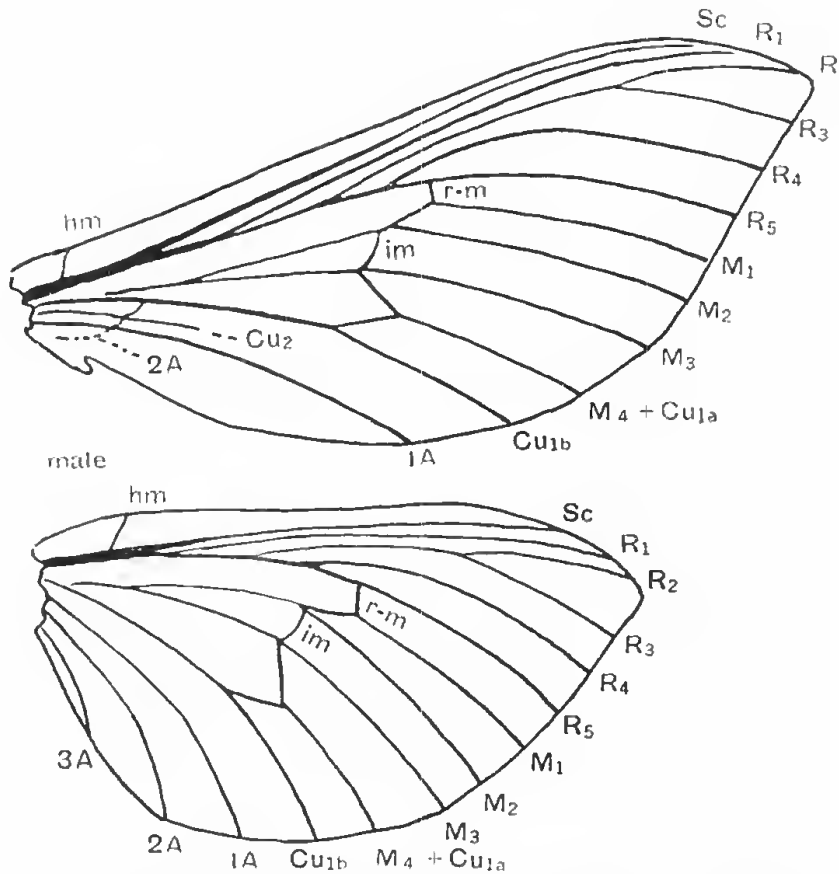


Fig. 26. *Abantiades hyalinatus* (Herrich-Schaeffer). Venation, male.

The generic and specific synonymy of *Abantiades* is involved, partly owing to the long-continued misidentification of the first described form, *A. labyrinthicus* (Donovan, 1805). The true *A. labyrinthicus* had unipectinate antennae, as is plainly shown in the original figures, which represent the sexes of a common New South Wales species with a broad black area surrounding the discoidal silvery fascia.

The name *Abantiades* was published by Herrich-Schaeffer (1855), with bibliographical references to his figures of three species published in 1853 (an

adequate indication according to Opinion 1 in the International Rules of Zoological Nomenclature).

No genotype was fixed until 1892, when Kirby designated *A. hyalinatus* Herrich-Schaeffer, 1853 (*diaphanus* Herrich-Schaeffer, 1855). This is a valid selection, since *A. diaphanus* is not a *nomen nudum*, being accompanied by a short bibliographical reference, "Exot. fig. 50." linking it with the figure of *hyalinatus*. Herrich-Schaeffer seemingly intended *diaphanus* to be a substitute name for *hyalinatus*.

The males, and to a lesser extent the females, of species of *Abantiades* have antennal segments of characteristic form, ranging from the almost circular lamellae of *A. leucochilon* (fig. 21) to the reduced type present in *A. apheges* (fig. 25). The last-named species and *A. fulvovirginatus* stand somewhat apart from the rest of the members, and may be eventually placed in a separate genus. The hairy clothing of the segments is a distinctive character.

The following key is based chiefly on conspicuous characters in male specimens. The females are much larger, and have similar wing markings, in which the white bands are generally obscured or infuscated, and the ground-colours are less sharply defined.

#### KEY TO THE SPECIES OF ABANTIADES.

- a. Forewings with conspicuous silvery-white bands.
  - b. Terminal and discoidal white bands separate (in occasional examples of some species may be linked by a slender streak in the area between  $M_1$  and  $M_2$ ).
    - c. Discoidal band strongly and irregularly dentate or broken.
      - d. Ocellate markings present.
        - e. Hindwings snowy-white . . . . . *sericalus*
        - ee. Hindwings not snowy-white.
          - f. Tegumen of male with margin produced into a blunt point . . . . . *ocellatus*
          - ff. Tegumen of male with margin rounded . . . . . *marcidus*
      - dd. Ocellate markings absent.
        - g. Ground colour uniformly brown, ochreous, or brick-red . . . . . *hyalinatus* part.
        - gg. Ground colour greyish-brown, white bands narrowly margined with black . . . . . *aurilegulus*
        - ggg. Ground colour broadly black in discoidal region, elsewhere grey, labyrinthine markings conspicuous . . . . . *labyrinthicus* part.
    - ce. Discoidal band with rather straight and entire margins.



- h. Terminal white band broad.
  - i. Hindwings snowy-white .. .. . *leucochiton*
  - ii. Hindwings slaty-grey .. .. . *magnificus*
- hh. Terminal white band narrow.
  - j. Margins of band irregularly dentate .. *hydrographus*
  - jj. Margins of band straight .. .. . *latipennis*
- bb. Terminal and discoidal white bands strongly conjoined.
  - k. Forewings without labyrinthine markings .. *barcas*
  - kk. Forewings with labyrinthine markings.
    - l. Ground colour grey .. .. . *albofasciatus*
    - ll. Ground colour black, on margins grey .. *labyrinthicus*  
*v. sicainsani*
- aa. Forewings without conspicuous silvery-white bands.
  - m. Forewings without markings .. .. . *hyalinatus* part.
  - mm. Forewings with irregular white marks or lunules.
    - n. Costal margin tinged ochreous .. .. . *fulvomarginatus*
    - nn. Costal margin concolorous. . . . . *aphenges*

ABANTIADÉS SERICATUS sp. nov.

Fig. 27-28.

♂ Antennae ochreous-brown. Head, thorax, and legs grey, abdomen whitish. Forewings grey, with numerous black labyrinthine markings; silvery-white markings forming a large discal area and a narrower subterminal oblique band, which are both strongly margined with black and golden-yellow; black and



Fig. 27-28. *Abantiades sericatus* sp. nov. Type and paratype, males. Lake Grace.

yellow ocellate markings are present in median area. Hindwings white, clothed at base with dense white pubescence. Wings beneath white, tinged grey. Expanse, 60 mm.

*Loc.* Western Australia: Lake Grace (W. B. Barnard, 1929). 2 males.

This species is related to the following one (*A. ocellatus*), from which it

differs in the proportions of the antennae, in the form of wings, in the greater irregularity of the white markings, and in the yellow and black ringed spots.

*ABANTIADES OCELLATUS* sp. nov.

Fig. 29-30.

♂ Antennae brown, thorax grey, anterior margin of legs brownish-black, elsewhere clothed with mixed brown and white hairs; abdomen above white, suffused with pale pink, below greyish-white. Forewings brownish with silvery-white markings forming broad discoidal and oblique terminal bands, margined with velvety-black and pale ochreous; costal margin tinged ochreous; three or more velvety-black and ochreous annular marks in discoidal region. Hindwings creamy-white, termen suffused grey; basal hair dense, pale pink. Wings beneath grey with marked costal ochreous suffusion. Expanse, 62 mm.



Fig. 29-30. *Abantiades ocellatus* sp. nov. Type, a male, and allotype female. Denmark, Western Australia.

♀ Larger than male, similarly marked, hindwings and abdomen greyish-brown. Expanse, 101 mm.

*Loc.* Western Australia: Denmark. (Type, a male, B. No. 32, March 17, 1926, and the allotype female, B. No. 33, March 13, 1926, W. B. Barnard). 1 male, 2 females.

A second female, from Western Australia, without definite locality, has been examined.

Owing to the scantiness of material in this and the preceding species, the genitalia have not been dissected. Inspection suggests that in *A. sericatus* there are two processes widely separated on ventral margin of the tegumen; the anterior one is the smaller, and is preceded by a rounded eminence. In *A. ocell-*

*latus* this eminence is absent, the two marginal processes are closer together, and the anterior one is larger than the posterior,

*A. ocellatus* is from the *karri* forest districts, where there is a high annual rainfall (30-35 inches), whereas *A. sericeatus* comes from semi-arid scrub and grass country with a low rainfall (below 15 inches).

*ABANTIADES MARCIDUS* sp. nov.

Fig. 31-34.

♂ Antennae dark chestnut-brown; head, thorax, abdomen, and legs grey. Forewings brownish-black, with numerous greyish-white labyrinthine markings; irregular discoidal longitudinal and oblique subterminal fasciae partly bordered with black. Hindwings grey, paler dense clothing at base and along costal margin. Wings below greyish-brown.

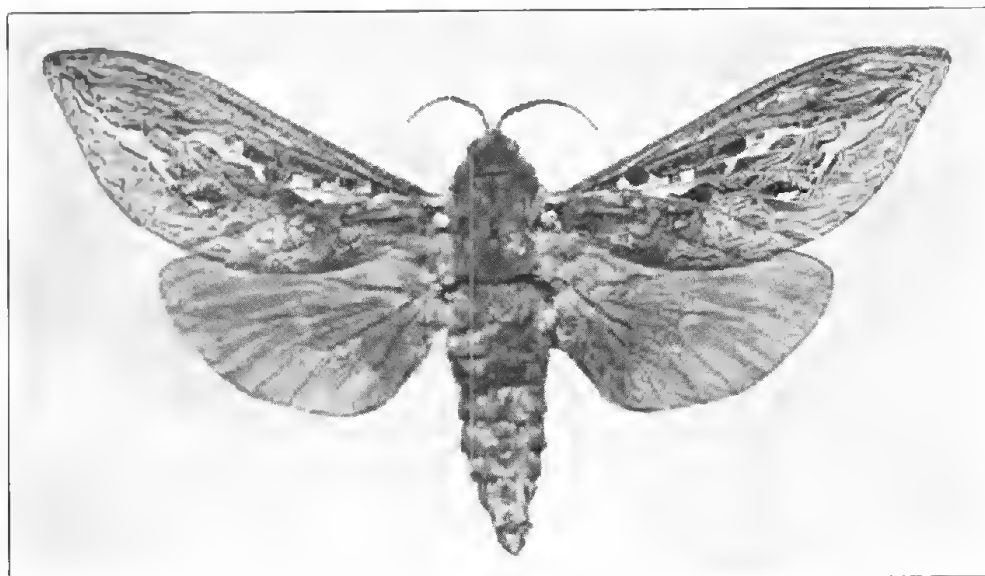


Fig. 31. *Abantiades marcidus* sp. nov. Type, a male, Adelaide.

♀ Similar to male; forewings brownish-black with numerous greyish-white labyrinthine markings; discoidal and subterminal markings of male almost obsolete, indicated by grey suffusions. Hindwings grey, dense clothing at base of wings paler. Expanse, 170 mm.

*Loc.* South Australia: Adelaide (April 4, 1928, N. B. Tindale, type, a male, and allotype female, I. 18657, in S. Aust. Mus.); Clarendon 4; Curreney Creek 5; Fowler Bay. Victoria: Kilmore 4; Gumbower, 3, 4. 18 males, 10 females.

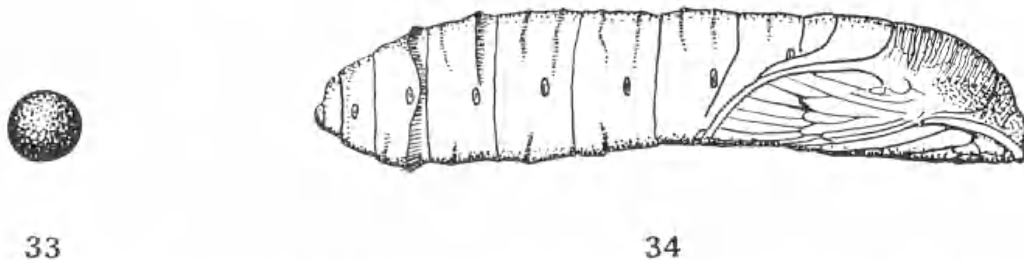
Apparently this species only appears in Adelaide on the first warm wet

night in April, when the males are attracted to lights, and may be captured with ease. The inland Victorian examples are indistinguishable from South Australian ones.



Fig. 32. *Abantiades marcidus* sp. nov. Allotype female, Adelaide.

The eggs and pupae of this species have been examined. The former are 0.6 mm. in diameter, spherical, and smooth; pale cream coloured when first laid, but changing to a dark slaty-grey colour. The pupa is 80 mm. in length and 15 mm. in greatest diameter; it is pale castaneous-brown in colour. (Fig. 34.)



Figs. 33-34. *Abantiades marcidus* sp. nov. Egg ( $\times 20$ ) and pupa, nat. size.

The pupal chamber is a silk-lined, vertical, subterranean shaft, 63-75 cm. in depth, leading to within a few millimetres of the surface. Pupation takes place at the base of this tunnel, and the pupa is capable of motion within the tube, being armed for this purpose with a series of ridges on several of the distal segments of the abdomen. The plug of earth closing the chamber is lifted like a hinged lid when the pupa thrusts half of its length out of the hole during emergence.

The Wirrangu natives of Fowler Bay, on the West Coast of South Australia,

dig up the larvae and pupae from around the roots of "gumtrees" and use them as food. The adults fly into the camp fires in great numbers; when this happens they are carefully raked out and eaten. They distinguish four stages: the small larvae, *pindi*; the full-grown larvae, *yalgunda*; the pupae, *tjirgi*; and the adult moths, *kunku*.

*ABANTIADES HYALINATUS* (Herrich-Schaeffer).

Fig. 24, 35-38.

*Epiolus hyalinatus* Herrich-Schaeffer, Lep. Exot., i, 1853, pl. xi, fig. 50, male.

*Abantiades diaphanus* Herrich-Schaeffer, *L.c.*, i, 1856, p. 5.

*Charagia ingens* Walker, List Lep. Ins. Brit. Mus., xxxii, 1865, p. 596, female (not male).

*Pielus erythrinus* Walker, *L.c.*, p. 599, male.

*Pielus imperialis* Olliff, Proc. Linn. Soc. N.S. Wales, ii (2), 1888, p. 1015, pl. 39; iii (2), 1889, pp. 641-642.

*Pielus ingens* Meyrick, Proc. Linn. Soc. N.S. Wales, iv (2), 1889, p. 1134.

*Pielus hyalinatus* Meyrick, *L.c.*, p. 1134 (part).

*Pielus ingens* [Pfitzner], Seitz Macrolepidoptera, Fauna indo-australia, ii, 1914, pl. 78a, female.



Fig. 35. *Abantiades hyalinatus* (Herrich-Schaeffer) male, Gishorne, typical form.

♂ Antennae brown; head, thorax, apex of abdomen, and legs ochreous; base of abdomen above with dense pink clothing. Forewings ochreous, a discoidal and an oblique subterminal series of silver-white marks margined with pale

brown. Hindwings ochreous, basal half with dense pink clothing, sometimes purple-tinged when fresh. Wings beneath ochreous. Expanse, 113 mm.

♀ Antennae brown; head, thorax, apex of abdomen, and legs ochreous; base of abdomen with dense pink clothing. Forewings unicolorous ochreous. Hindwings pale ochreous, basal half with dense pink clothing, usually purple-tinged when freshly caught. Expanse, 166 mm.

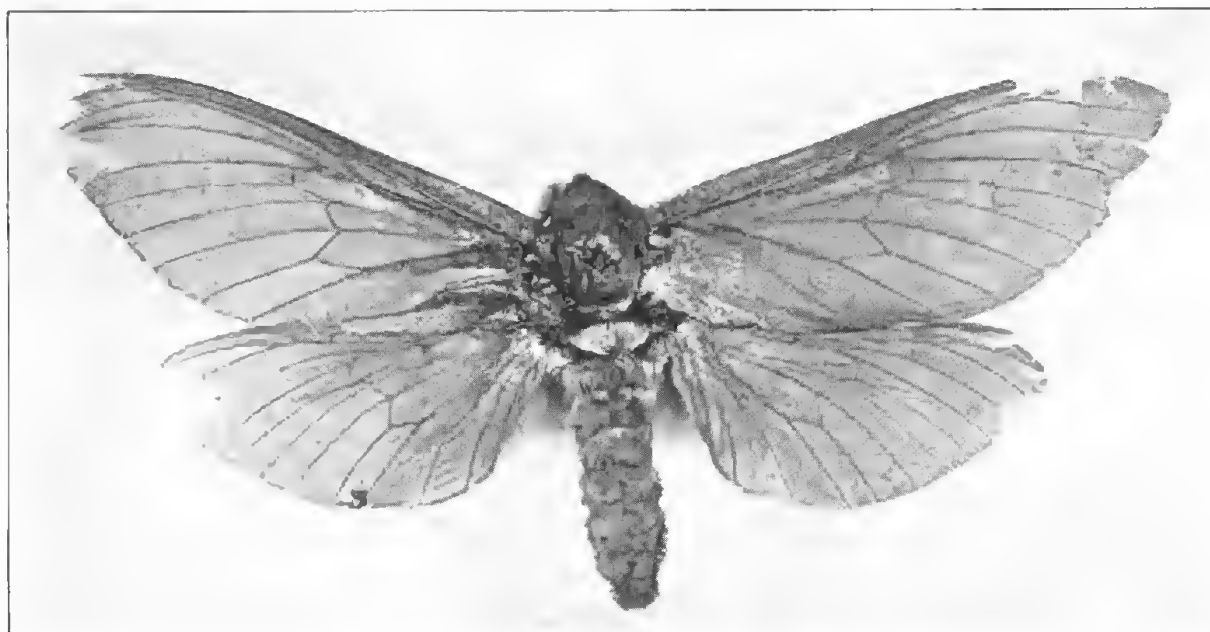


Fig. 36. *Abantiades hyalinatus* (Herrieh-Schaeffer) female (type of *ingens* Walker), (British Museum).

The male described above is from Gisborne (G. Lyell, in Hledge Coll., 1. 18659, in S. Aust. Mus.). It closely resembles Herrieh-Schaeffer's figure in both colour and markings. The latter was wrongly recorded as coming from New Zealand. Gisborne is nominated as the typical locality. The female is from Moc. It agrees closely with the one described by Walker under the name of *ingens*. This was also wrongly localized as from New Zealand and mis-sexed.

Male examples exhibit several rather distinct colour forms, which differ also in the presence or absence of markings. Some of these forms have received names. They may be recognized by the following table:

a.	Forewings with silvery markings.		
	b.	Ground colour dull ochreous	.. .. <i>hyalinatus</i>
	bb.	Ground colour brick-red	.. .. <i>E. imperialis</i>
	bbb.	Ground colour dark brown	.. .. <i>E. brunneus</i> form nov.
aa.	Forewings without silvery markings. Ground colour ranging from dull ochreous to brick-red		f. <i>erythrinus</i>

*Loc. (hyalinatus).* New South Wales: Blue Mountains 2. Victoria: Gisborne 2; Moe 3. 12 males. New South Wales: Baulkham Hills 4; Blackheath 3. Victoria: Moe 2, 3. 10 females.



Fig. 37. *Abantiades hyalinatus* f. *brunneus* form nov. Type, male, Eaglehawk Neck.

f. *imperialis*. New South Wales: Sydney; Blackheath; Beecroft 3; Medlow 1. Victoria: Moe 2, 3. 10 males.

f. *brunneus*. Tasmania: Eaglehawk Neck 2 (type, 1. 18660, in S. Aust. Mus., fig. 27); Sung River 2; Lannceston. Victoria: Pomonal, 3. New South Wales: Katoomba; Tuncurry 3. 6 males.

f. *erythrinus*. Victoria: Moe 2; Meeniyan 4; Gisborne 3. New South Wales: Beecroft 3; Sydney. 11 males.

The form *brunneus* is the only one so far recorded from Tasmania; it might almost be regarded as a definite race. One similar example has been taken at Katoomba, another in Western Victoria, and a castaneous-brown form, doubtfully associated with this one, is represented by a single male from Tuncurry.

The females of *hyalinatus* are usually without markings, and vary little except in size. Four females from Moe range from 129 mm. to 173 mm. in expanse. On the forewings of one of the largest examples there are faint indications of the scrolled labyrinthine lines common to many species of the family. Some male examples of the typical and f. *imperialis* types also show traces of this additional ornamentation.

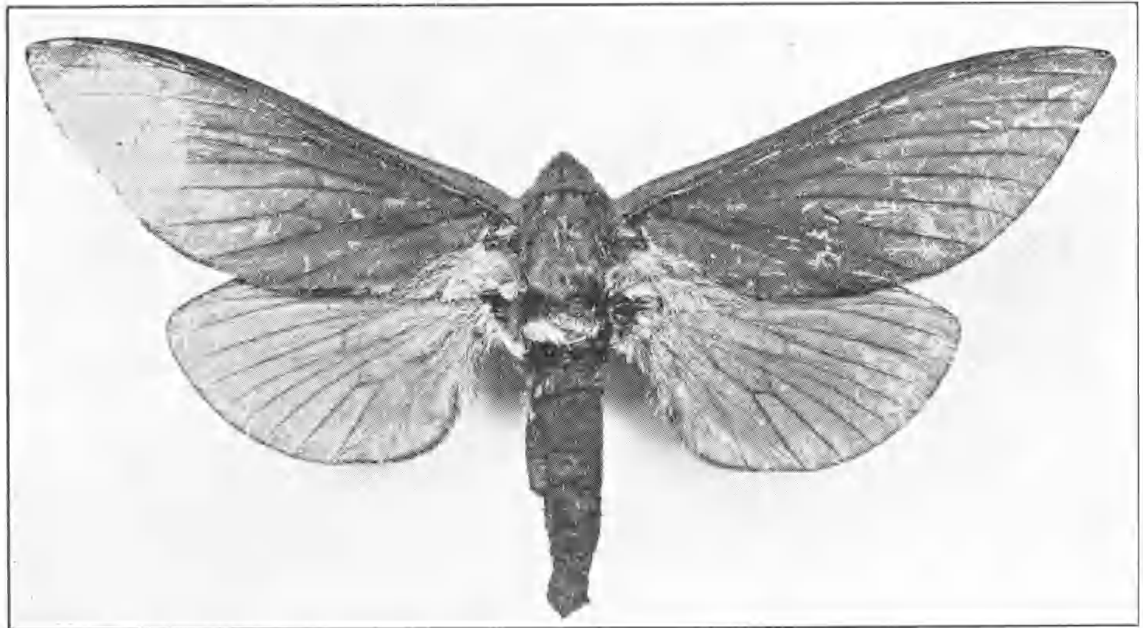


Fig. 38. *Abantiades hyalinatus* var. *erythrinus* (Walker). Type, male (British Museum).

Nothing is known concerning the life-history. The species appears early in the year, and is never abundant. Mr. C. G. L. Gooding has captured freshly-emerged specimens clinging to fence posts in the late afternoon after heavy rain has fallen.

*ABANTIADES AURILEGULUS* sp. nov.

Fig. 39-40.

♂ Antennae brown; head, thorax, legs, and abdomen pale brown. Forewings pale brown; longitudinal discoidal and subterminal oblique fasciae white, margined with darker brown. Hindwings pale brown. Wings below pale brown. Expanse, c.95 mm.

*Loc.* Western Australia: "Goldfields" (Type, I. 18662, in S. Aust. Mus., ex old coll.); Kalgoorlie (L. J. Newman). 2 males.

Superficially this species is close to the Eastern *A. barcas*, from which it differs in the form of the wings, the relative positions of the silvery-white markings, and in the genitalia. In the present species the tegumen bears a median process on the ventral margin, and the margin itself is finely serrated. In *A. barcas* there is a broad triangular process forming the greater part of the posterior half of the tegumen, and the margin is not serrated. In *A. aurilegulus* the valves are relatively slender at the apex, whereas in *A. barcas* they are much broader, almost spatulate in form when viewed from the side.



Both examples under examination are defective; the paratype is somewhat more brightly coloured and fresher than the type, but the wings are very battered.

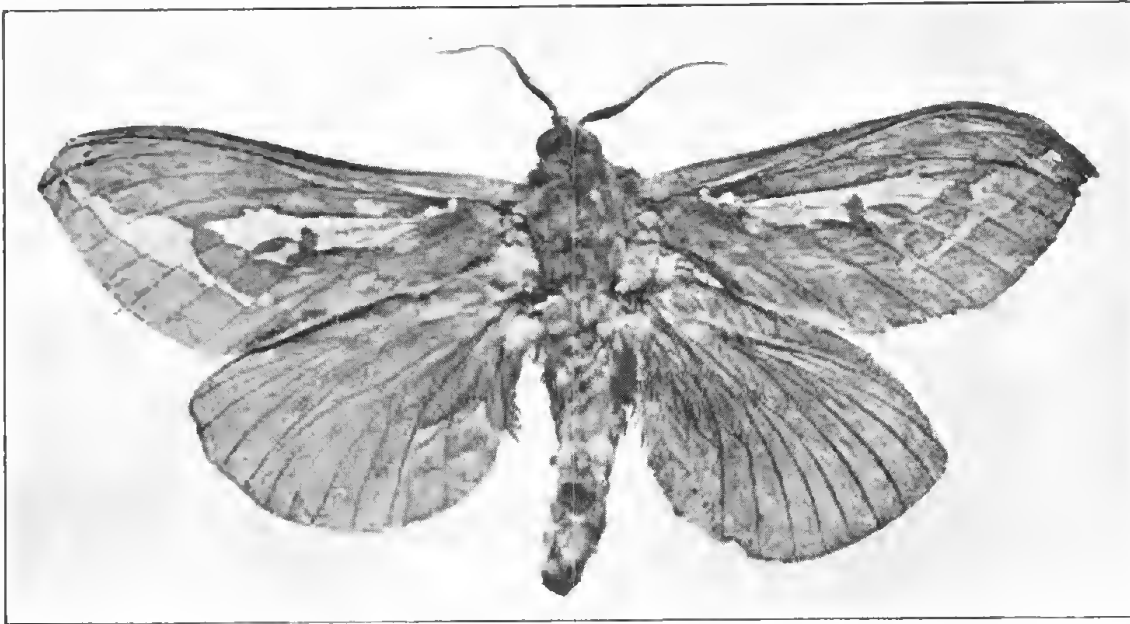


Fig. 39. *Abantiodes aurilegulus* sp. nov. Type, a male, Western Australia.



Fig. 40-41. 40. *Abantiodes aurilegulus* sp. nov. male genitalia, composite photograph.  
41. *Abantiodes barcas* (Pfitzner) male genitalia,

## ABANTIADDES LABYRINTHICUS (DONOVAN),

Fig. 42-47.

*Cossus labyrinthicus* Donovan, Ins. N. Holl., 1805, t. 38, fig. 1. male.*Cossus argenteus* Donovan, *l.c.*, fig. 2, female.*Pielus tasmaniae* Walker, List Lep. Ins. Brit. Mus., vii, 1856, p. 1577. male.*Pielus swainsoni* Scott, Aust. Lep., 1864, p. 11, pl. 4, male, female, and life-history.*Pielus hyalinatus* Meyrick, Proc. Linn. Soc. N.S. Wales, iv (2), 1889, p. 1134 (part).*Pielus tasmaniae* Swinhoe, East. Lep. Het., i, 1892, p. 289.*Pielus diversata* Lucas, Proc. Roy. Soc. Queensland, xiii, 1898, p. 62.[*Pielus*] *hyalinatus* [Pfitzner], Seitz Macrolepidoptera, Fauna indo-australia, ii, 1914, pl. 75b.

Fig. 42. *Abantiades labyrinthicus* (Donovan), male, Tasmania (type of *tasmaniae* Walker, in British Museum).

♂ Antennae reddish-brown; head, thorax, abdomen, and legs greyish-brown. Forewings dark brown; margins suffused with greyish-white, with numerous wavy brown lines forming a complex pattern; discoidal and subterminal oblique silvery-white streaks, margined with brownish-black; dark background conspicuous in a broad median band from near base to the subterminal white band, thence to apex. Hindwings greyish-brown, veins tinged ochreous. Wings beneath dull ochreous-brown. Expanse, 108 mm.

♀ Antennae reddish-brown; head, thorax, and greater part of abdomen above ochreous; legs orange; ventral surface and apex of abdomen dull orange.

Forewings pale brown; silvery-white bands of male almost absent, represented by ochreous-brown areas; rest of wings covered with wavy or scrolled lines. Hindwings pale brown; at veins narrowly ochreous. Wings beneath ochreous-brown, margins ochreous. Expanse, 180 mm.

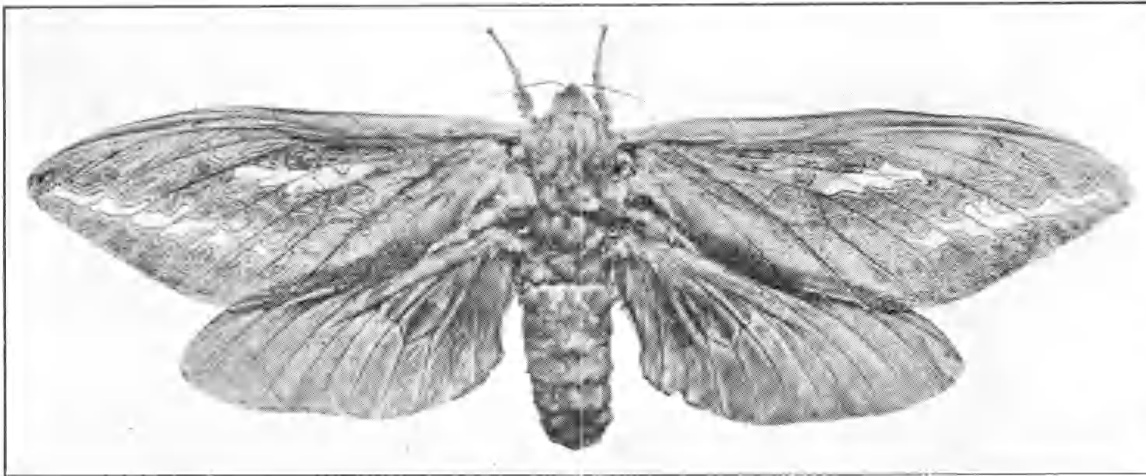


Fig. 43. *Abantiodes labyrinthicus* (Donovan), female, New South Wales (supposed type of *argenteus* Donovan, in McLeay Museum).

*Loc.* Queensland: Rockhampton; Toowoomba 4. New South Wales: Ebor 1; Killara 3, 4; Sydney 4; Ash Island; Newcastle; Pambula 3; Pymble 3, 4; Beercoft 3. Victoria: Lorne 3; Trafalgar 2; Tanjil 1; Macedon 2; Bullengarook 1; Gisborne 1, 3; Narracan 3. Tasmania: Launceston. 64 males, 23 females.

The male described is from Mittagong (I. 18663, in S. Aust. Mus.), and was selected for its close similarity to the original figure, and, as the place of capture of Donovan's type is unknown, this is nominated as the type locality. The female (fig. 43) is an example labelled "New South Wales" (in the Macleay Museum), which may be Donovan's type of *argenteus*.

In one female example from Gisborne the markings on forewings are silvery-white, as in the male. The type female of *diversata* Lucas (fig. 45) is similarly distinguished. This may be a character of the southern race.

The Rockhampton example is very light in colour, and is not quite typical; with further material it may prove to be a separate race. Two generally distributed forms of this species may be distinguished; they are not specific, because intergrades occur, and both types may appear together in the one locality.

- a. Forewings with discoidal and subterminal silvery-white bands separate . . . . . *labyrinthicus*
- aa. Forewings with silvery-white bands conjoined . . . . . f. *swainsoni*

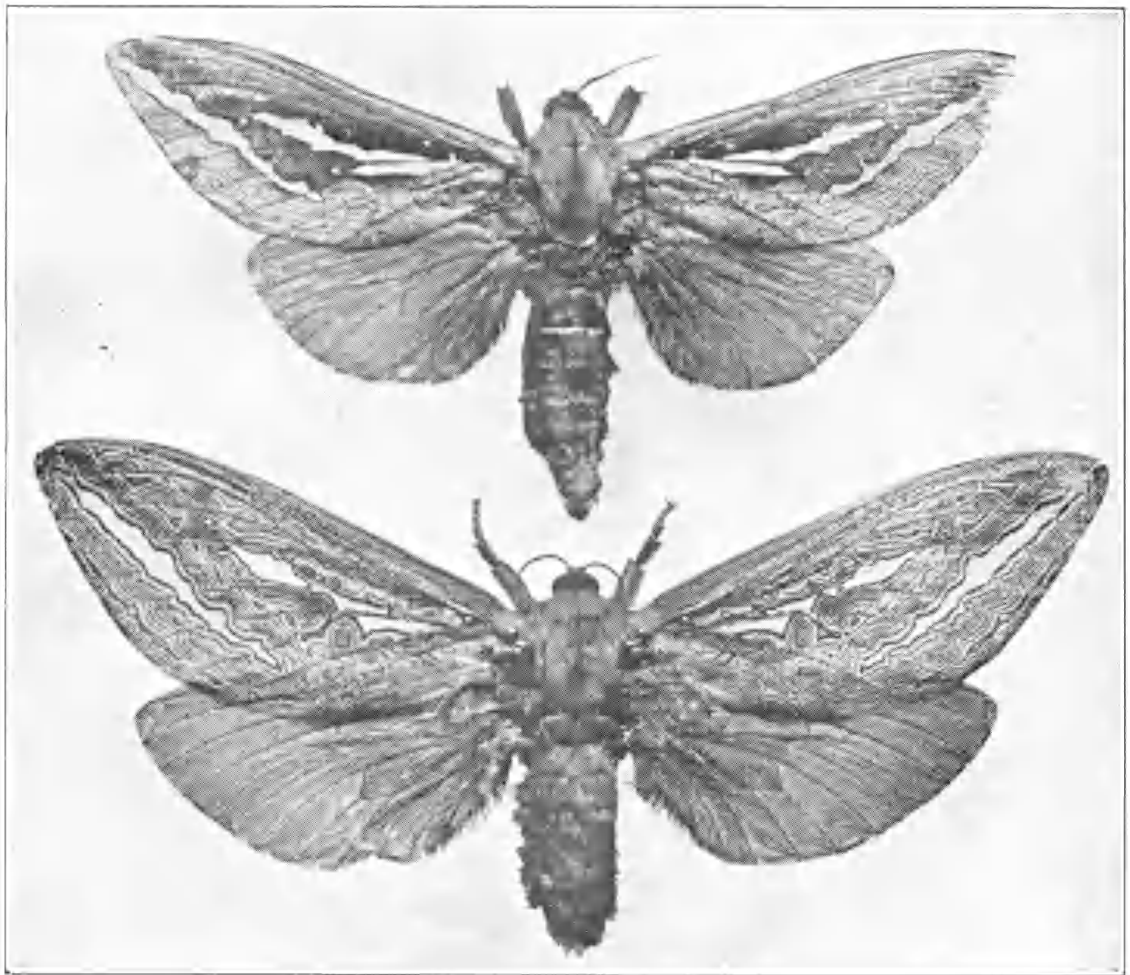


Fig. 44-45. *Abantiades labyrinthicus* (Donovan) Eltham, male and female (types of *diversata* Lucas).

The examples of f. *swainsoni* figured (fig. 46-47) are a male from Toowoomba (in Lyell Collection) and a female from Gosford (in Australian Museum Collection).

The type male of f. *swainsoni* (figured by Scott) is also in the Australian Museum, Sydney. The female associated with it by Scott has the two white marks separate, as in typical specimens of *labyrinthicus*. A photograph of Walker's type of *tasmaniae* is given (fig. 42), and the types of *diversata* Lucas, which are in the South Australian Museum (l. 14322), are figured (fig. 44-45). Besides the above-mentioned forms there may be found dwarfed, dull examples, dull greyish-brown in colour, with markings partly or quite obsolete. This is probably one of the most variable species; the male genital characters are, however, remarkably constant,

The name *labyrinthicus* has been wrongly applied by previous authors; this has led to much confusion in nomenclature. Reference to Donovan's original

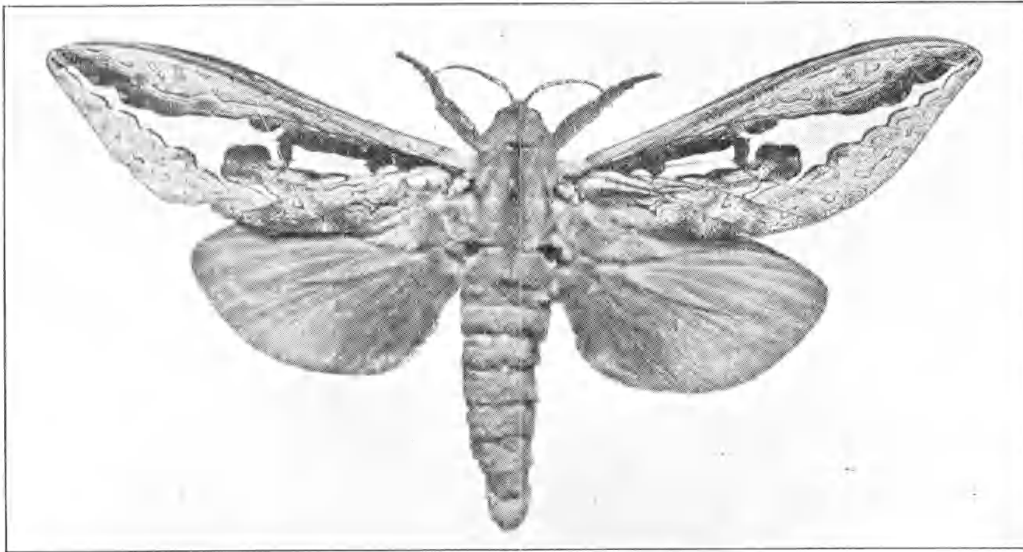


Fig. 46. *Abantiades labyrinthicus* f. *swainsoni* (Scott), male, Toowoomba.

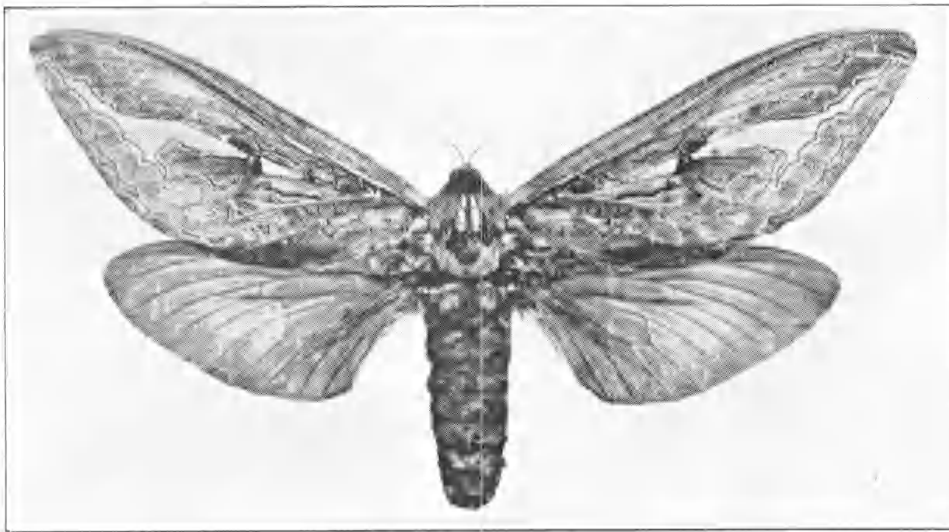


Fig. 47. *Abantiades labyrinthicus* f. *swainsoni* (Scott), female, Gosford.

figures indicates that the present species was described, and under Article 31 of the International Rules the above synonymy seems inevitable. The life-history has been described and figured by Scott.

## ABANTIADIS LEUCOCHITON (Pfitzner).

Fig. 21, 48-49.

[*Pichus*] *leucochiton* [Pfitzner], Seitz Macrolepidoptera, Fauna indo-australia, ii, 1914, pl. 75a, male.

♂ Antennae brownish-black; head, thorax, and legs greyish-brown; base of abdomen white, towards apex brownish-black. Forewings brownish-black, with rather well-developed grey labyrinthine markings; discoidal longitudinal and subterminal oblique silvery-white fasciae, strongly bordered with black.

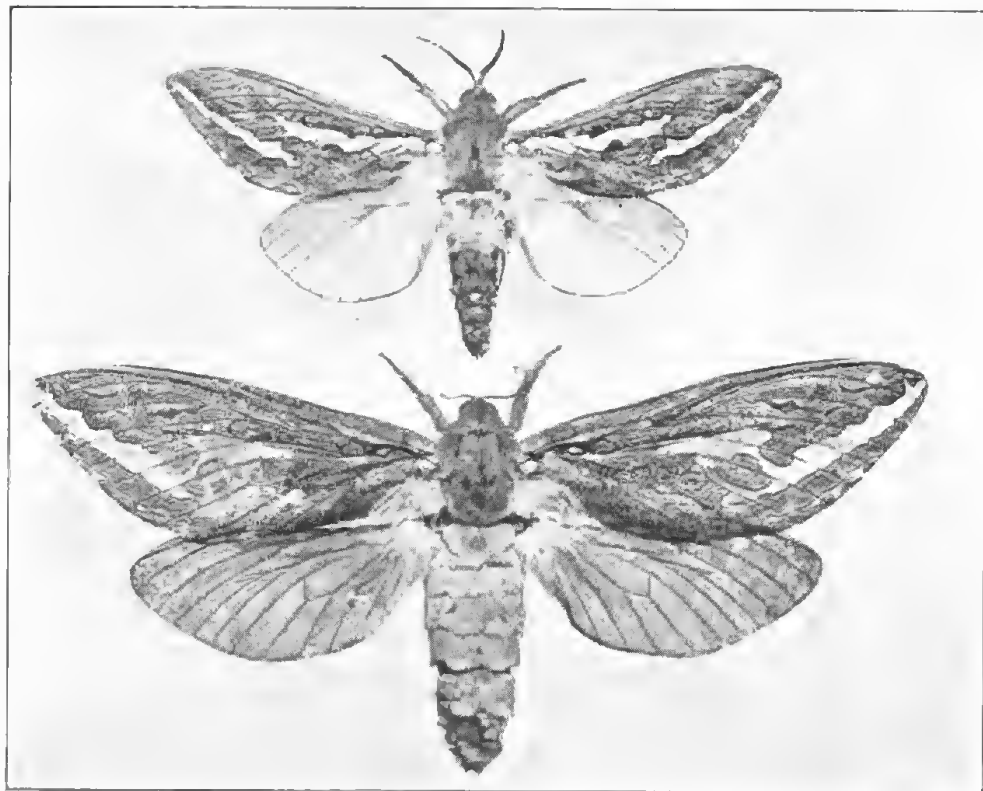


Fig. 48-49. *Abantiades leucochiton* (Pfitzner) male and female, Kewell.

Hindwings white, costa suffused grey, terminal margin narrowly dark brown, veins finely outlined brown; base of wing with dense snowy-white pubescence. Forewings beneath greyish-brown; discoidal fascia of dorsal surface marked below by long, white pubescence. Hindwing as above; bases of both wings covered with dense white pubescence. Expanse, 99 mm.

♀ Antennae brownish-black; head, thorax, and legs dark greyish-brown; abdomen paler. Forewings dark brownish, markings similar to male, discoidal

fascia partly obscured, bordered dark brown. Hindwings greyish-brown, base with dense greyish-white pubescence. Expanse, 146 mm.

*Loc.* Victoria: Kewell 3, 4. 6 males, 2 females.

The place of capture of Pfitzner's type is apparently unknown. The male and female described above are from Kewell (I. 18664, in S. Aust. Mus.); therefore this is nominated as the typical locality.

According to Mr. J. A. Hill the larva of this species feeds on the roots of the bull oak (*Casuarina Luehmannii*); the imago usually emerges early in April.

ARANTIAPES MAGNIFICUS (Lucas).

Fig. 50-51.

*Pielus magnificus* Lucas, Proc. Roy. Soc. Queensland, xiii, 1898, p. 61.

♂ Antennae reddish-brown; head, thorax, ventral surface of abdomen, and legs smoky-grey; dorsal surface of abdomen dull brown. Forewings smoky-

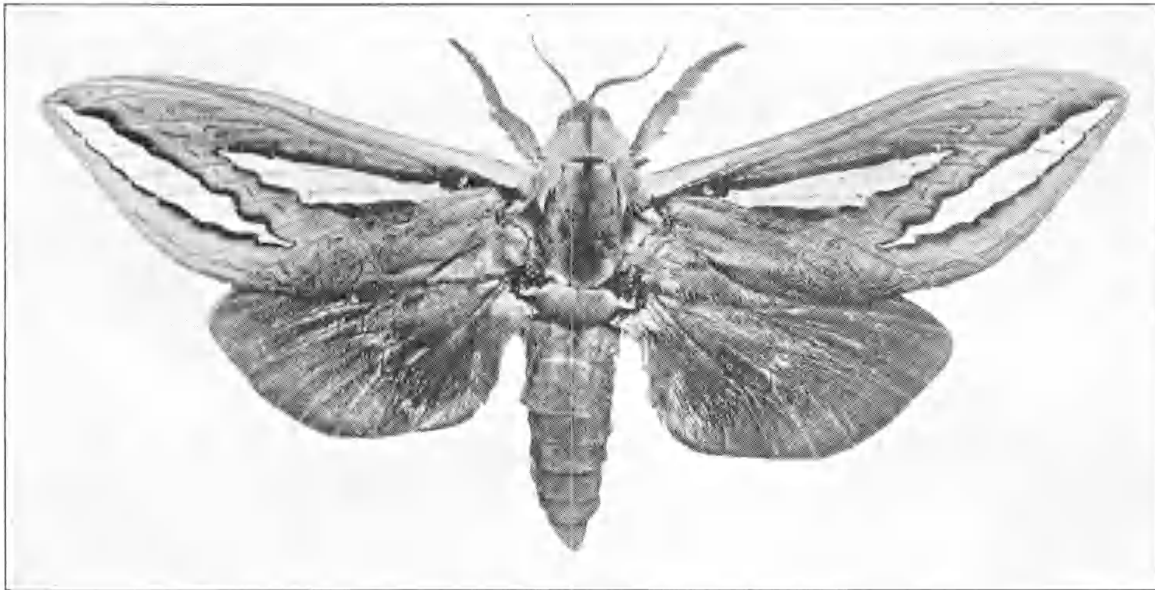


Fig. 50. *Arantiapes magnificus* (Lucas), type, a male, Melbourne.

grey with obscure markings; broad longitudinal discoidal and oblique subterminal silvery-white streaks margined with black. Hindwings dull brown, at base ochreous-brown. Wings beneath dull brown. Expanse, 136 mm.

♀ Antennae reddish-brown; head, thorax, apex of abdomen, and legs smoky-grey, tinged ochreous; base of abdomen paler, ochreous-grey. Forewings smoky-grey with obscure markings; the broad white streaks of male indicated,



but dull grey in colour. Hindwings dark grey, at base tinged ochreous. Wings beneath dull grey, at base tinged ochreous. Expanse, 184 mm.

*Loc.* Victoria: Melbourne; Warragul 4; Trafalgar 4; Moe 2; Beaconsfield; Gisborne 12; Narnargoon. New South Wales: Snowy River, near Mount Kosciuszko (4,000 feet) 1. 7 males, 6 females.

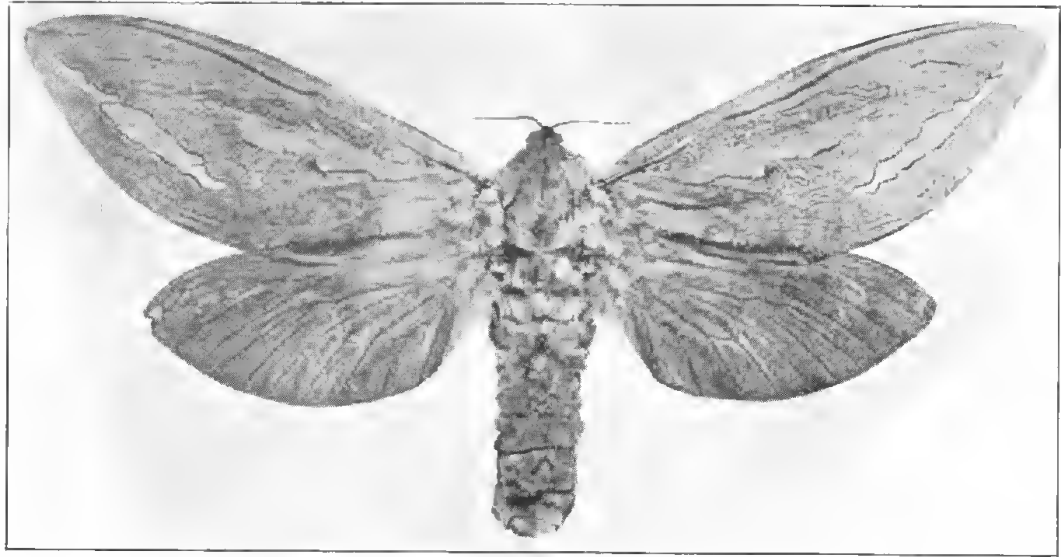


Fig. 51. *Abantiates magnificentus* (Lucas), female.

Lucas's male example (l. 18655, in S. Aust. Mus.) has been redescribed and figured; the measurement (125 mm.) given by him for the expanse of the wings was obtained by his usual method, i.e., from tip to tip of the forewings as "set." The female described by him cannot be recognized in his collection; it probably did not belong to the present species. The above-mentioned example is from Beaconsfield (l. 18665, in S. Aust. Mus.). A similar example from Gisborne, in the Lyell Collection, has been figured.

ABANTIATES HYDROGRAPHUS (Felder).

Fig. 20, 23, 52-53.

*Pictus hydrographus* Felder, Reise Novara, Lep., 1868, pl. lxxx, fig. 3, female.

*Trictena labyrinthica* Meyrick, Proc. Linn. Soc. N.S. Wales, iv (2), 1889, p. 1135 (in synonymy only).

♂ Antennae brownish-black; head, part of thorax, abdomen (except base), and legs pale brown; lateral parts of thorax grey; base of abdomen clothed with dense pink down. Forewings with a broad central area brown; marginal areas and part of central area greyish-brown, with usual crenulate markings; a well-



defined longitudinal discoidal and oblique subterminal silvery-white band, margined with brownish-black. Hindwings distally pale brown, paler near costa; basal third clothed with dense pink down. Wings beneath brown, basal half clothed with dense pink down. Expanse, 149 mm.

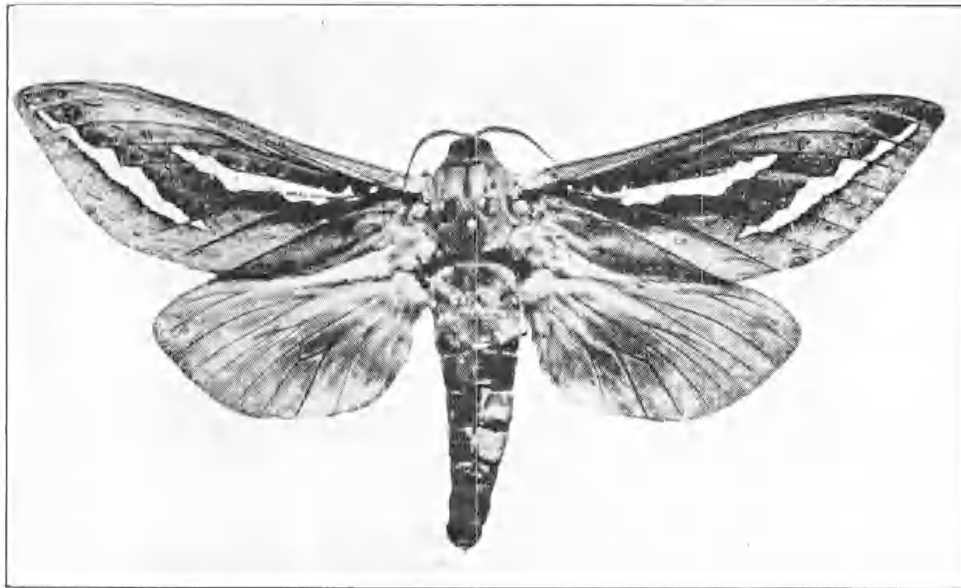


Fig. 52. *Abantiades hydrographus* (Felder), male.

♀ Colour and markings similar to male; down on wings and at base of abdomen almost white. Expanse, 199 mm.

*Loc.* Western Australia: Swan River; Donnybrook 3; Waroona 3, 4, 5 males, 7 females.

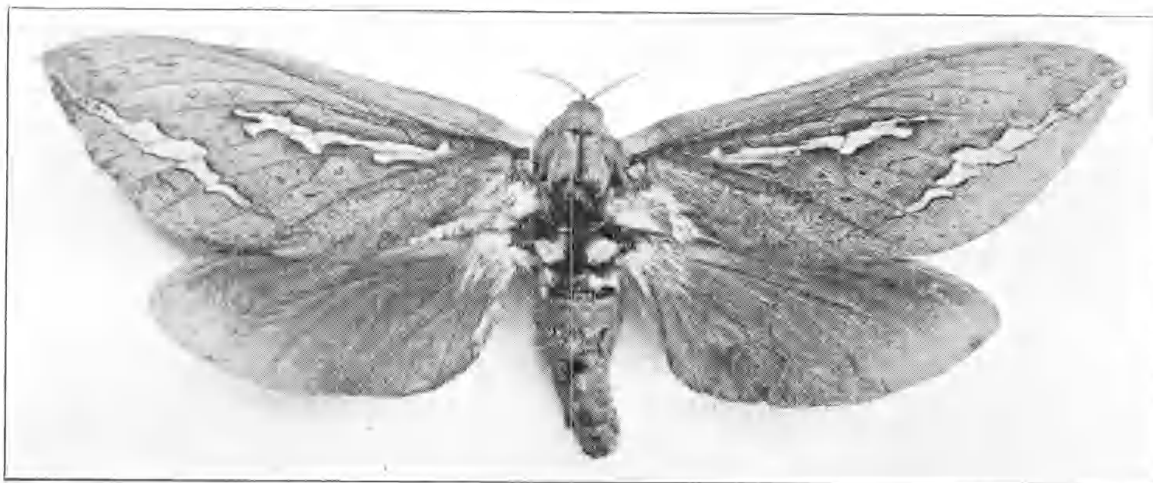


Fig. 53. *Abantiades hydrographus* (Felder), type, a female (in Tring Museum Collection).

The male example described is from Swan River (l. 18666, in the S. Aust. Mus.). Felder's type, a female, which is now preserved in the Tring Museum, is also figured. A female from Waroona (April 2, 1912, G. F. Berthoud, in Lyell Collection) agrees very closely with Felder's example.

This species has been wrongly recorded as from Adelaide. The error has arisen because Felder associated a male of *Trictena argentatus* from Adelaide (Angas Collection) with his type of *hydrographus*, which is from "Australia." I am indebted to Dr. K. Jordan, of the Tring Museum, for directing my attention to the origin of this mistake, and for furnishing a photograph of the example.

*ABANTIADES LATIPENNIS* sp. nov.

Fig. 54-56.

♂ Antennae castaneous; head, thorax, and abdomen pale brown; legs ochreous, with brown fringe of down. Forewings pale brown, with plain discoidal and terminal oblique silvery-white bars margined with brownish-black;

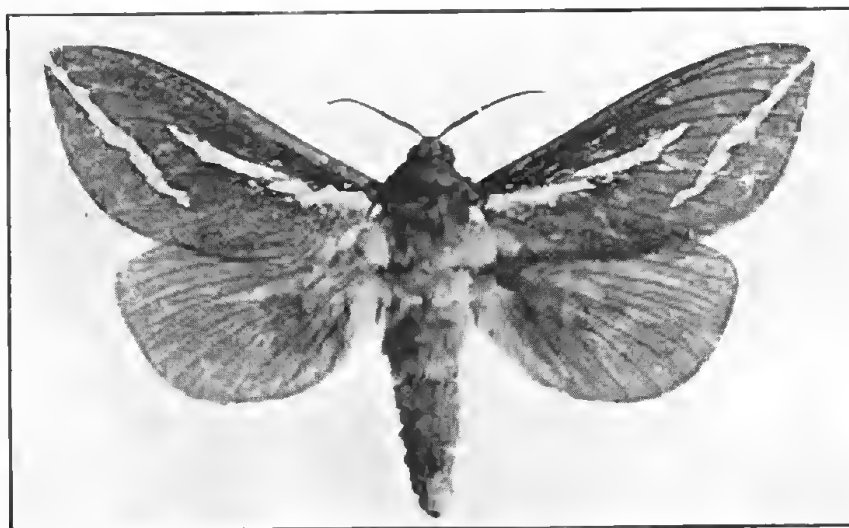


Fig. 54. *Abantiades latipennis* sp. nov., type, a male.

some traces of labyrinthine marks on posterior margin. Hindwings pale brown, clothed at base with dense pink down. Wings beneath pale brown; costal margin ochreous. Expanse, 78 mm.

♀ Antennae castaneous; head, thorax, and abdomen greyish-brown; legs ochreous, with dark brown hairy fringes. Forewings dark brown; costal margin dull ochreous; silvery-white markings as in male, but with more irregular margins; traces of labyrinthine markings over much of wing. Hindwings dark

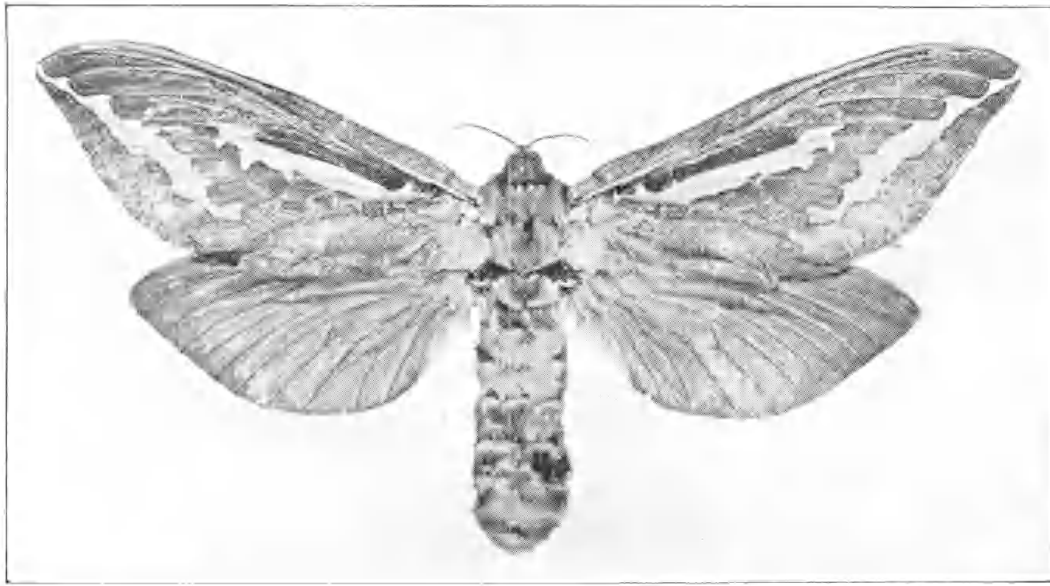


Fig. 55. *Abantiades latipennis* sp. nov., allotype female.

brown, costal margin ochreous; pink hairs confined to base. Wings beneath brown, costal margins ochreous. Expanse, 150 mm.

*Loc.* Victoria: Lorne 3, type a male, in Lyell Collection, allotype female 3 (I. 18667, in S. Aust. Mus.); Pomonal 3: Mount Mistake. Tasmania: Zeehan 2; Eaglehawk Neck 2; Launceston. 10 males, 1 female.

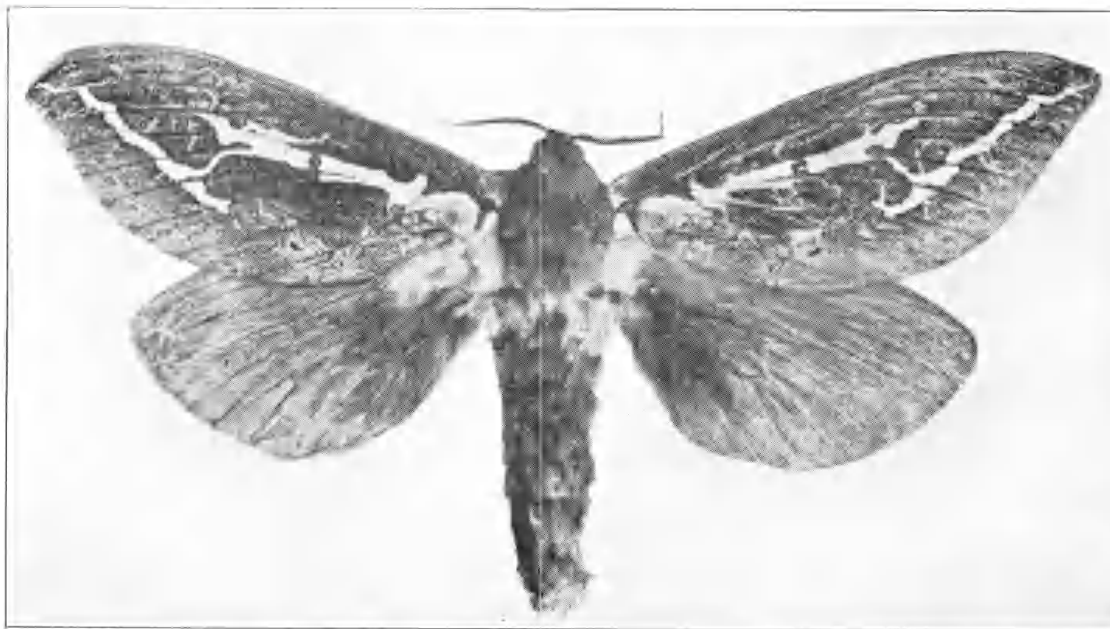


Fig. 56. *Abantiades latipennis* sp. nov., male, aberrantly marked.

The sexes differ markedly in wing dimensions and in the form of the hindwings; in some other ways the resemblances are close, and, as a paratype male and the allotype female were taken in the same place within twenty-four hours of each other, there can be little doubt that they are conspecific.

The Tasmanian examples are usually darker than the mainland ones, and the obscure labyrinthine markings on forewings are more evident.

Fig. 56 shows an aberrant example in which the white marks of forewings are conjoined.

ABANTIADES BARCAS (Pfitzner).

Fig. 57.

[*Pietus*] *barcas* [Pfitzner], Seitz Macrolepidoptera, Fauna indo-australia, ii, 1914, pl. 75 d, e, male and female.



Fig. 57. *Abantiades barcas* (Pfitzner), male, Sydney.

♂ Antennae brown; head, thorax, abdomen, and legs pale brown. Forewing pale brown, costal margin somewhat darker; a broad, irregular, semi-circular silver-white band margined with dark brown extends from near base to apex; hindwings pale brown, at base with dense, faintly pinkish pubescence. Wings beneath pale brown. Expanse, 112 mm.

♀ Antennae brown; head, thorax, and legs ochreous-brown; abdomen above greyish-brown, at apex ochreous-brown, beneath brownish-ochreous. Forewings brown, with termen and principal veins tinged ochreous. Traces of conjoined terminal and median silver bands of male also present. Hindwings brown.

at base somewhat paler. Wings beneath greyish-brown, with termen and principal veins tinged brownish ochreous. Expanse, 166 mm.

*Loc.* Queensland: Stanthorpe. New South Wales: Duntroon 3; McQuarrie Fields; Orange; Sydney 3. Victoria: Rutherglen 4; Benalla. 11 males, 1 female.

The examples described are from Sydney and McQuarrie Fields (I. 18668, in S. Aust. Mus.).

*ARANTIADDES ALBOFASCIATUS* (Swinhoe).

Fig. 58-59.

*Pictus albofasciatus* Swinhoe, East. Lep. Het., i, 1892, p. 289, male and female.

♂ Antennae dark brown; lamellae ovoid, twice as long as wide. Head, thorax, and apical half of abdomen brown, base clothed with pink tinged white down. Legs greyish-brown. Forewings brown, with numerous greyish-white labyrinthine markings; a broad, longitudinal white band extends from base to apex, a thin submarginal white band along part of termen. Hindwings grey, base clothed with white down. Expanse, 96 mm.



Fig. 58. *Abantiades albofasciatus* (Swinhoe), type, a male (in Oxford University Museum Collection).

♀ Similar to male. Labyrinthine markings more conspicuous. Expanse, 156 mm.

*Loc.* Western Australia: Swan River. (Types in Oxford University Museum.) 1 male.

The type examples and a single unlocalized male from Western Australia are the only specimens known. The species is quite a distinct one.

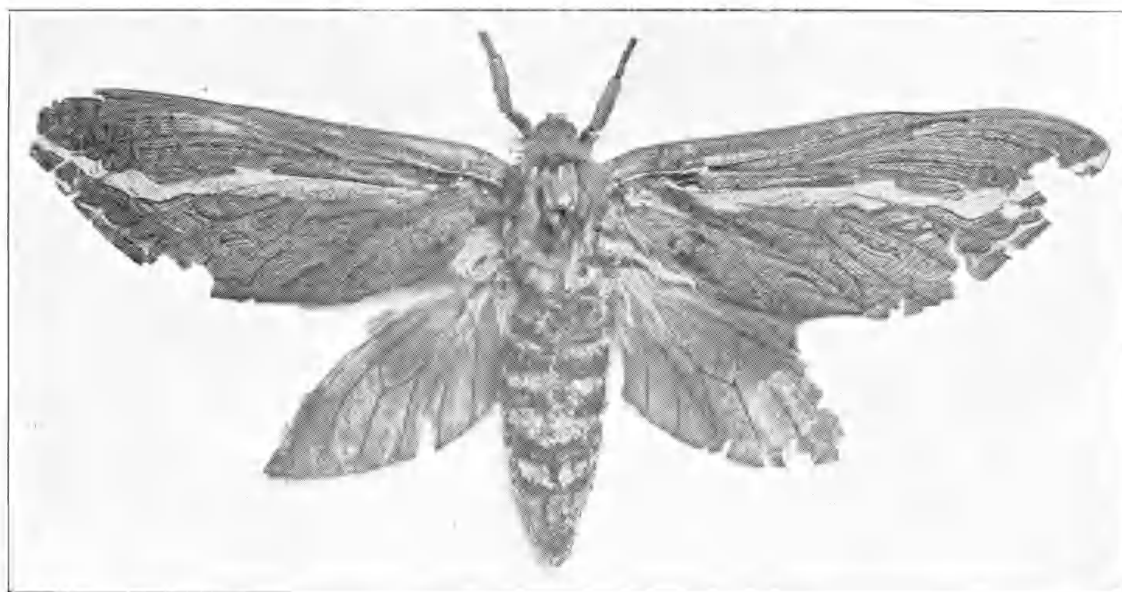


Fig. 59. *Abantiades albofasciatus* (Swinhoe), allotype female (in Oxford University Museum Collection).

ABANTIADES FULVOMARGINATUS sp. nov.

Fig. 60-62.

♂ Antennae ochreous; head and thorax brownish-black; abdomen grey. Forewings dark grey, with dull subhyaline-whitish markings; four subocellar markings in discoidal region dull black; costal margin faintly ochreous. Hind-

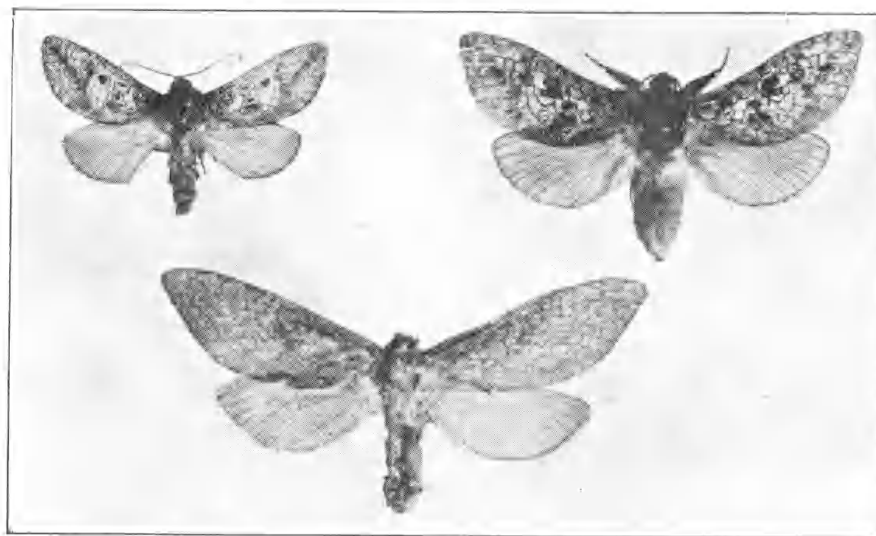


Fig. 60-62. *Abantiades fulvomarginatus* sp. nov. 60 type, a male, Lennox, 61 allotype female, Lennox, 62 paratype male, Denmark, W.A.

wings with costal margin broadly pale ochreous, terminal half grey. Wings beneath, with costal margins, ochreous, otherwise grey. Expanse, 44 mm.

♀ Forewings grey, with paler cryptic markings; a darker grey suffusion in discoidal area. Hindwings pale grey. Wings below pale grey; costal margins faintly ochreous. (Head and antennae missing in allotype female.) Expanse, 69 mm.

*Loc.* Western Australia: Lennox 4 (type, a male, and allotype female); Denmark 4. 2 males, 1 female.

The second male example is larger (expanse, 61 mm.) than the type, and the dark markings are slightly larger and more suffused. This species is distinct from *A. ocellatus* in the shape of the wings and in the general disposition of the markings.

*ABANTIADES APHENGES* (Turner).

Fig. 63-64.

*Pictus aphenges* Turner, Trans. Roy. Soc. S. Aust., xxxviii, 1904, p. 247.

♂ Antennae pale ochreous brown; head, thorax, and legs dark chocolate-brown; abdomen greyish-brown. Forewings uniformly dark chocolate-brown, with numerous whitish lunules and short streaks. Hindwings greyish-brown. Wings beneath greyish-brown; costa of hindwings paler. Expanse, 56 mm.



Fig. 63-64. *Abantiades aphenges* Turner, male, Manly, female, Roseville.

♀ Similar to male; markings on forewings paired instead of single; abdomen somewhat darker than in male. Expanse, 86 mm.

*Loc.* New South Wales: Roseville 3, 4; Manly 4; Killara 4; Hornsby 4; Beecroft 3. 7 males, 2 females.

The male described is from Manly (l. 18669, in S. Aust. Mus.); the female

is from Roseville, and is in the Lyell Collection. The type has not been seen; its small wing expanse (64 mm.) suggests that it may be a male example.

Dr. G. A. Waterhouse states that at Killara this species is found shortly after dusk on one or more dark, wet evenings in April. It flies close to the ground, and is difficult to secure.